Maryland Agricultural College Bulletin

Vol. 9. No. 4 April-June, 1913

Catalogue 1913-14

1856-1913

The Maryland Agricultural College

Issued Quarterly. Entered at College Park, Md., as Second-Class Matter, under Act of Congress, July 16, 1894.

Persons wishing to receive the College Catalogue or desiring any information concerning the College or its work, may address

THOMAS H. SPENCE, Acting President,
Maryland Agricultural College,
College Park, Md.

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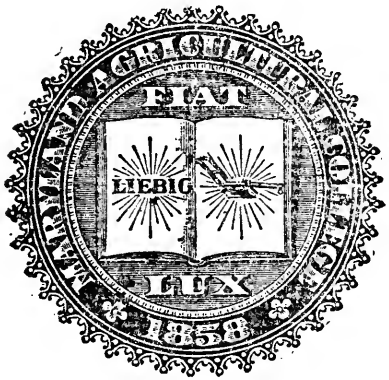
THE

MARYLAND

AGRICULTURAL COLLEGE

COLLEGE PARK, MARYLAND

1856



1913

CATALOGUE

1913-14

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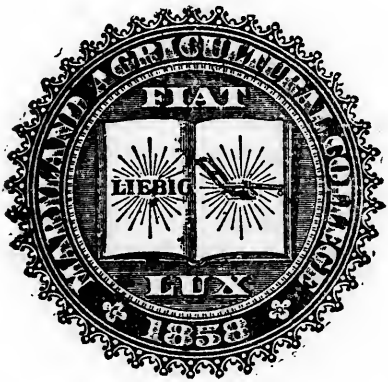
1856  1913

CATALOGUE

1913-14

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JUL 24 1913

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2. Sugar Corn.

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Alfalfa.

MR. W. J. MORSE, U. S. Department of Agriculture, Washington, D. C.

Cow Peas and Soy Beans.

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2. Incubation.
3. Brooding.
4. Growing Young Stock.
5. Caponizing.

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2. Principles of Breeding.

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2. Hot Water and Stove Brooding.

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2. Diseases of Adult Fowls.

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2. Marketing Poultry Products.

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2. Peach Culture.
3. Nut Culture in Maryland.

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Marketing Orchard and Truck Crops.

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Some Important Insect Pests of the Orchard.

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MR. W. R. BALLARD, Maryland Agricultural Experiment Station, College Park, Md.
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MR. M. B. WAITE, U. S. Department of Agriculture, Washington, D. C.
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Strawberry Culture.

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The Canning of Corn and Peas.

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Sweet Potato Culture.

DIRECTOR H. J. PATTERSON, Maryland Agricultural Experiment Station, College Park, Md.
Fertilizers, Their Mixing and Use.

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The Importance of Good Seed in the Growing of Truck Crops.

MR. RICHARD VINCENT, JR., White Marsh, Md.
Beautifying Home Grounds and the International Flower Show

FARM LIVE STOCK AND DAIRY.

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2. Co-operative Breeders' Association.
3. Breeding-up a Herd.

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2. Breadmaking.
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4. House Furnishing.
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6. Canning.
7. Principles of Cooking Protein.
8. Planning Meals.

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2. Household Chemistry.
3. The Care of Milk.

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The Chemistry of Cleaning.

MR. YOUNG, Washington, D. C.

Demonstration of Methods of Cutting-up a Side of Beef for the Retail Trade.

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The State's Duty to Agriculture.

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3. Alfalfa.

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Strawberry Culture.

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Importance of Drainage.

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CALENDAR.

1913.

THIRD TERM.

Tuesday, March 25th, 1 P. M.—Third Term Begins.
Thursday, May 15th.—Submitting of Theses.
Friday, June 13th.—Final Meeting of Trustees.
Sunday, June 15th.—Baccalaureate Sermon.
Monday, June 16th.—Class Day.
Tuesday, June 17th.—Alumni Day.
Wednesday, June 18th, 11 A. M.—Commencement Day Exercises.

1913-14.

FIRST TERM.

Tuesday, September 16th, and Wednesday, September 17th.—Entrance Examinations.
Thursday, September 18th, 1 P. M.—College Work Begins.
Thursday, November 27th.—Thanksgiving Recess.
Friday, December 19th, 4 P. M.—First Term Ends.
Friday, December 19th, 4 P. M., to Tuesday, January 6th, 1 P. M.—Christmas Recess.

SECOND TERM.

Tuesday, January 6th, 1 P. M.—Second Term Begins.
Wednesday, January 7th.—Special Winter Courses Begin.
Monday, February 2nd.—Filing Subjects of Theses.
Saturday, March 21st.—Second Term and Special Winter Courses End.

THIRD TERM.

Monday, March 23rd.—Third Term Begins.
Wednesday, April 8th, Noon, to Tuesday, April 14th, 1 P. M.—Easter Recess.
Friday, May 15th.—Submitting of Theses.
Friday, June 12th.—Final Meeting of Trustees.
Sunday, June 14th.—Baccalaureate Sermon.
Monday, June 15th.—Class Day.
Tuesday, June 16th.—Alumni Day.
Wednesday, June 17th, 11 A. M.—Commencement Day Exercises.

MARYLAND AGRICULTURAL COLLEGE.

HISTORY.

"An act to establish and endow an agricultural college in the State of Maryland" was passed by the Legislature of the State in 1856, and is found in Chapter 97 of the Laws of Maryland for that year. The scope of this act of incorporation is shown by the preamble, which reads as follows:

> WHEREAS, It has been represented to the Legislature, that certain wise and virtuous citizens are desirous of instituting and establishing in some convenient locality within this State, an Agricultural College and Model Farm, in which the youthful student may especially be instructed in those arts and sciences indispensable to successful agricultural pursuits; and
>
> WHEREAS, It doth appear to this Legislature, that while the wise and learned in the present age hath cultivated with laudable industry, and applied with admirable success the arts and sciences to other pursuits, the most necessary, useful and honorable pursuits of agriculturists have so far been lamentably neglected; and
>
> WHEREAS, It is the province and duty of the Legislature to encourage and aid the philanthropic citizens in their efforts to disseminate useful knowledge by establishing an Agricultural College and Model Farm, which shall, in addition to the usual course of scholastic training, particularly indoctrinate the youth of Maryland, theoretically and practically, in those arts and sciences, which with good manners and morals, shall enable them to subdue the earth and elevate the State to the lofty position its advantages in soil, climate, etc., and the moral and mental capacities of its citizens, entitle it to attain.

This was the first effort in the Western Hemisphere to use scientific investigation for the advancement of the vocation of Agriculture, since at that time no other institution of a similar character existed in the United States. Under the charter thus granted to a party of public-spirited individuals, the original College building was erected, and its doors were opened to students in the fall of 1859.

For three years it was conducted as a private institution. In 1862, the Congress of the United States, recognizing the valuable work in the cause of practical education which such colleges could achieve for the country passed the "Land Grant Act." This Act granted each State and Territory which should claim its benefit

a proportionate amount of unclaimed Western lands, in place of scrip, the proceeds from the sale of which should apply under certain conditions to the "**endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.**" This grant having been formally accepted by the General Assembly of Maryland, and the Maryland Agricultural College being named as the beneficiary of the grant, the College thus became, in part, at least, a State institution, and such it is at the present time.

During recent years the College has made a steady growth. This fact is evidenced by the increased number of students availing themselves of its facilities; by the erection of many new buildings—the library and gymnasium building, the chemical laboratory, Morrill Hall, the sanitarium, the administration building and barracks, and the engineering building; as well as by the establishment of the Department of Farmers' Institutes and the State Departments of Chemistry (Fertilizer, Feed and Agricultural Lime Control), Horticulture, Entomology and Vegetable Pathology. As a consequence of its development under such favorable auspices the institution has become the most important factor in the agricultural and industrial development of the State.

The State Bureau of Forestry co-operates with the College, the Director being, by the terms of his appointment, Lecturer on Forestry at the Agricultural College.

LOCATION AND DESCRIPTION.

The Maryland Agricultural College is located in Prince George's county, Maryland, on the line of the Washington Branch of the B. & O. R. R., eight miles from Washington, and thirty-two miles from Baltimore. At least nine trains a day from each city stop at College Station, thus making the place easily accessible from all parts of the State. Hyattsville is the telegraph station. Telephone connection is made with the Chesapeake and Potomac lines.

The College grounds front on the Baltimore and Washington Boulevard. The suburban town of Hyattsville is two miles to the south, and Laurel, the largest town in the county, is ten miles to the north on the same road. Access to these towns and to Washington may be had by steam and electric railway. The site of the College is particularly beautiful. The buildings occupy the crest of a commanding hill, which is covered with forest trees, and overlooks the entire surrounding country. In front, extending to the Boulevard, is a broad, rolling campus, the drill ground and athletic field of the students. In the rear are the farm buildings and barn. A quarter of a mile to the northeast are the buildings of the Experiment Station. The College farm contains about three hundred acres, and is devoted to fields, gardens, orchards, vineyard, poultry yards, etc., used for experimental purposes and demonstration work in agriculture and horticulture.

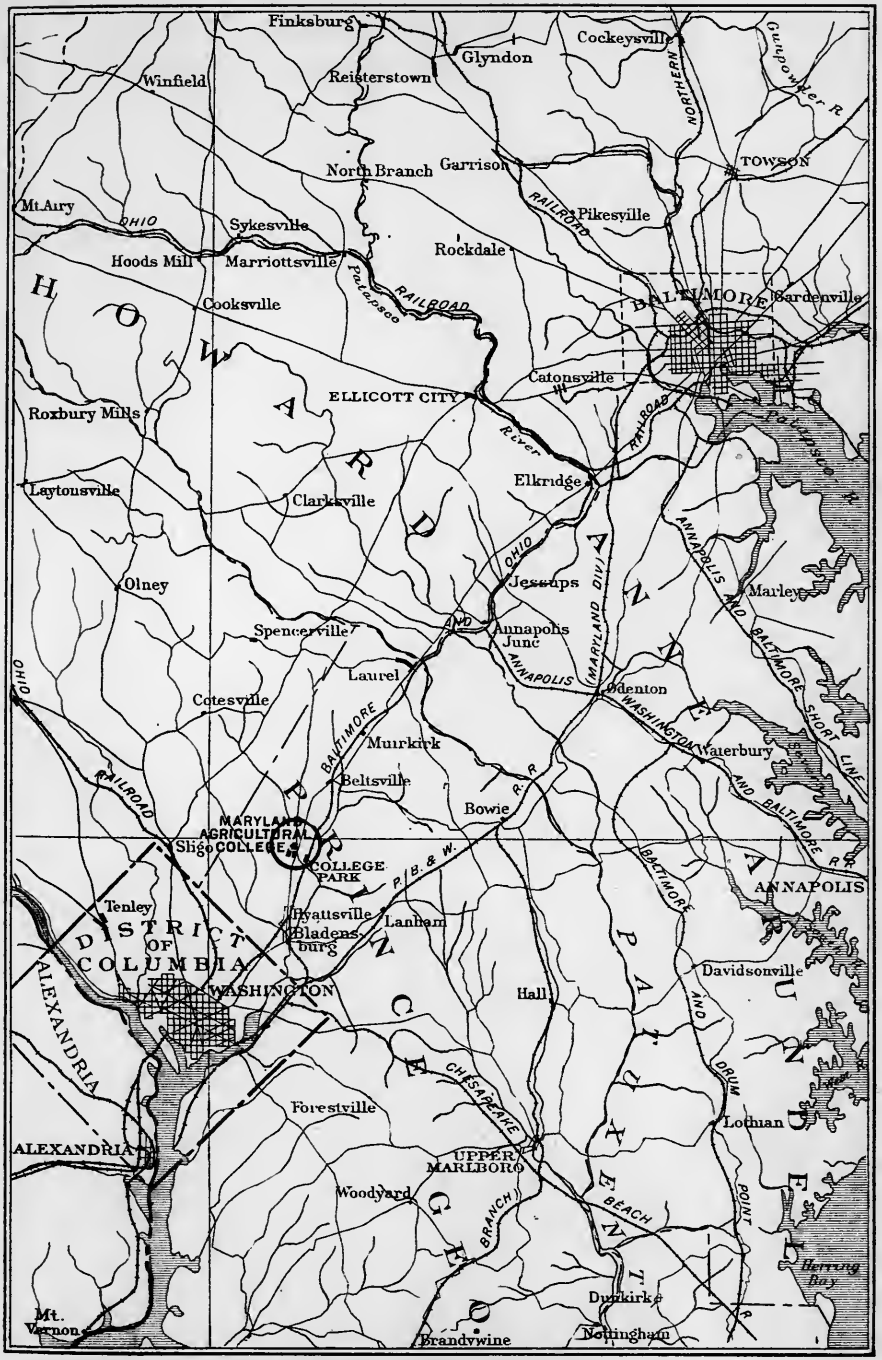
The general appearance of the College grounds is exceedingly attractive. They are tastefully laid off in lawns and terraces which are ornamented with shrubbery and flower beds. The view from the grove and campus cannot be surpassed.

The location of the College is healthful; the sanitary conditions are excellent. No better proof of this can be given than that there has been practically no serious case of illness among the students for many years.

COLLEGE BUILDINGS—THE FIRE.

The original College building completed in 1859 and the administration building completed in 1904 and connected with the former by a covered bridge, were completely destroyed by fire on the night of November 29, 1912. These buildings contained living rooms for the students, assembly hall, drill hall, executive offices and two recitation rooms. The insurance on these buildings, about $125,000, is available for rebuilding, which will be commenced at an early date.

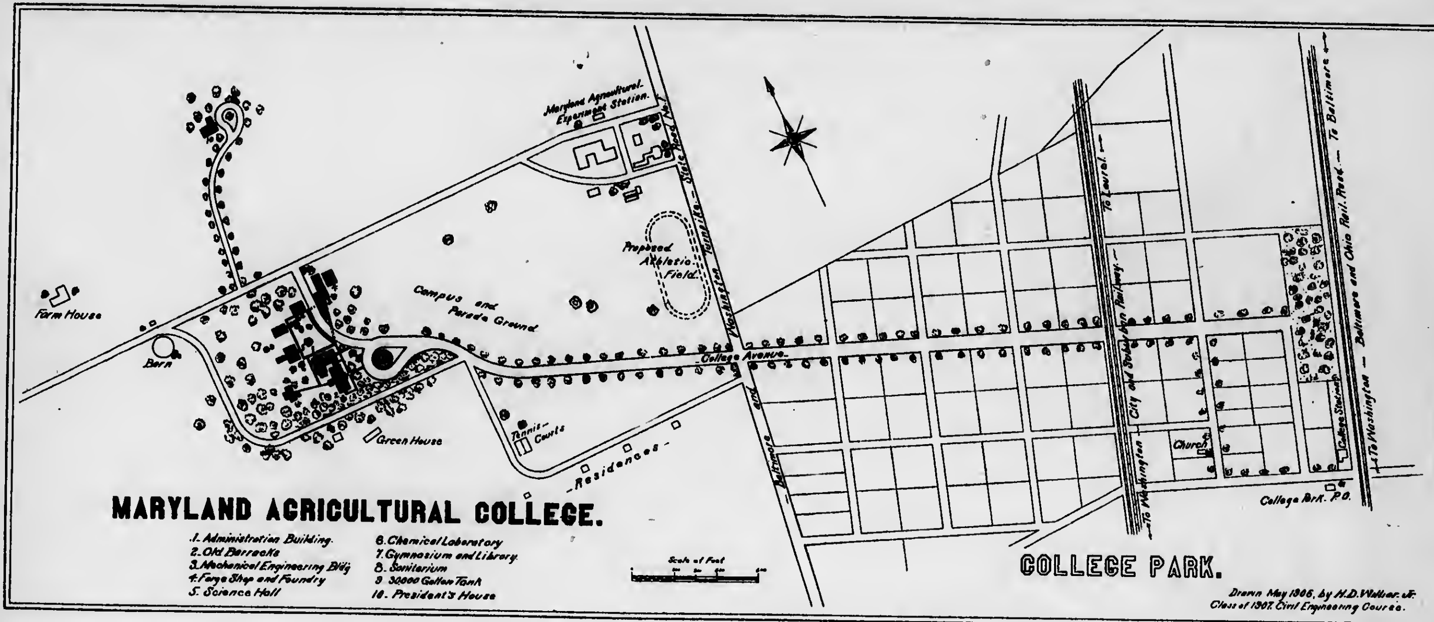
A temporary assembly hall, kitchen and dining halls have been erected and are now ready for use. Living rooms for a part of the students are available in several houses on the College farm.



MAP SHOWING LOCATION OF

MARYLAND AGRICULTURAL COLLEGE.

8 7 6 5 4 3 2 1 0 8


MARYLAND AGRICULTURAL COLLEGE.
1. Administration Building.
2. Old Barracks
3. Mechanical Engineering Bldg
4. Forge Shop and Foundry
5. Science Hall
6. Chemical Laboratory
7. Gymnasium and Library
8. Sanitarium
9. 30,000 Gallon Tank
10. President's House
Scale of Feet
COLLEGE PARK.
Drawn May 1906, by H.D. Walker Jr.
Class of 1907. Civil Engineering Course.
Farm House
Barn
Green House
Tennis-Courts
Residences
Campus and Parade Ground
Proposed Athletic Field
Maryland Agricultural Experiment Station.
Washington Turnpike — State Road No. 1
Baltimore and
College Avenue
To Laurel
City and Suburban Railway
To Washington
Church
College Station
College Park. P.O.
To Baltimore
Baltimore and Ohio Rail. Road
To Washington

The fire did not touch any of the laboratories, shops or greenhouses, and but two recitation rooms, so that the facilities for instruction are unimpaired.

In 1894 the building used as the gymnasium and library was erected. The gymnasium, on the ground floor, is well furnished with modern athletic appliances. The library and reading room is on the second floor, and is large, well-lighted and commodious.

The Departments of Civil, Electrical and Mechanical Engineering and the Department of Physics are located in the two-story brick building erected in 1896, the brick annex erected in 1904, and the brick addition constructed in 1909. This latter, which consists of a main building four stories in height and a wing three stories in height, is so arranged as to form with the buildings previously erected a concrete whole. In this group of buildings are found laboratories of various kinds, wood and machine shops, a forge room and foundry, drawing rooms, blue print rooms, instrument rooms, lecture rooms, offices, a library room, lavatories, etc. The equipment is modern in every respect and the facilities for work in the above named departments are greatly increased.

The chemical building was completed in 1897, and is now thoroughly equipped. It contains several lecture rooms and laboratories for practical work and the analysis of fertilizers, feeding materials for domestic animals, and agricultural lime. This work is assigned by Acts of the General Assembly to the Professor of Chemistry at this College, who thereby becomes the State Chemist.

Another addition to the group of College buildings is Morrill Hall, erected in 1898. This building provides accommodations for the Departments of Agriculture, Horticulture, Entomology, Vegetable Pathology and Veterinary Science. A greenhouse for experimental work in entomology and vegetable pathology was erected in 1904.

The College Sanitarium, completed in 1901, has proved a most efficient means of isolating infectious diseases which might otherwise have become epidemic, thus seriously embarrassing College work. It contains ample room for all emergencies, and is furnished with modern hospital facilities. This building is being used, temporarily, as the Administration Building.

GENERAL AIM AND PURPOSE.

The Agricultural College is the State school of science and technology. While seeking, first of all, to perform the functions of an agricultural college, its sphere of work has been widened to embrace all the sciences akin to agriculture, and all the arts related to mechanical training. To these special and prominent lines of work have been added such branches of study as are necessary for a liberal education, for the development of the intelligent citizen and for general culture. The purpose of this college is to give young men anxious to prepare themselves for the active duties of life such training in the lecture room and laboratory as will enable them to take their places in the industrial world well prepared for the fierce competition of the day.

Recognizing that such an education, in order to be of practical advantage to many, must be offered at a cost within the means of all, the expenses for the year to the student have been reduced to the point where his college dues are not in excess of his ordinary daily expenses. It is to be remembered that the College is a State institution, in part supported by the State, in part by the Federal Government, through its several endowment Acts, and that it is in no sense a money-making institution, but simply a medium of disbursement by the Government to those upon whom the safety and prosperity of the State so largely depend.

While the College provides, as will hereafter be explained, several distinct courses of instruction, looking to the special training of the student in agriculture, engineering and science, the fact is clearly kept in view that a sound foundation must be laid for each and every course. Successful specialization is only possible after the student has prepared for it by a thorough training in the essentials. All education must be narrow and one-sided which does not provide for the general culture of the student, and which does not look first to the natural and normal development of the individual. That the aim of the College is to train the student in a specialty without sacrificing his development in general culture is shown in the description of the general working plan given in the next paragraph.

It begins with the student in his first, or Freshman, year with

a systematic and carefully adjusted scheme of work, differing but little in the several courses, and looking to his general development in mental strength, range of information and power of expression and thought. At the beginning of his second, or Sophomore, year the differentiation may be said to begin along those lines in which he shows most natural aptitude. This gradual specialization continues during his third, or Junior, year, until in his last, or Senior, year, his work consists chiefly of a few closely connected topics, in which he is thus able thoroughly to prepare himself. With the present equipment of the laboratories and work-shops a student is able to become so proficient in his chosen line of work that when he leaves the College a successful career is open to him if he chooses to avail himself of it.

The Agricultural College, is logically, the crowning point of the public school system of Maryland. Its aim in particular is to provide a higher education for the graduates of the county schools. To this end its curriculum is adjusted to meet the preparation of such students. It is this class of young men that the College is especially desirous of reaching. Experience has shown that our most satisfactory students come as graduates from the county schools, and no efforts will be spared to make the transition from the high school or grammar school to the College a possible one for all those actuated by an earnest desire to complete their education.

DEPARTMENTS OF THE COLLEGE.

AGRICULTURE—
AGRONOMY.
ANIMAL HUSBANDRY.
FORESTRY.
BOTANY AND VEGETABLE PATHOLOGY.
CHEMISTRY.
CIVIL ENGINEERING.
ELECTRICAL ENGINEERING AND PHYSICS.
ENGLISH AND CIVICS.
ENTOMOLOGY AND ZOOLOGY.
HORTICULTURE—
POMOLOGY.
VEGETABLE CULTURE.
LANDSCAPE GARDENING AND FLORICULTURE.
LANGUAGES.
MATHEMATICS.
MECHANICAL ENGINEERING.
MILITARY SCIENCE.
ORATORY.
PHYSICAL CULTURE.
SUB-COLLEGIATE INSTRUCTION.
VETERINARY SCIENCE.

The following pages give, under the several departments, the general character of the courses offered by each, and the main features of their equipment.

AGRICULTURE.

PROFESSOR TALIAFERRO.
MR. BESLEY.
ASSOCIATE PROFESSOR RUFFNER.
MR. KINZY.

The Agricultural Department offers three courses:

I. A four-year course leading to the degree of Bachelor of Science.

II. A two-year course, for proficiency in which a certificate is awarded.

III. Short winter courses. An outline of these courses is given on page 118.

Education is transforming the farms into veritable work-shops, whose products, in the aggregate, more than equal those of any other industry of the country, and which, under the influence of more general intelligence, are capable of indefinite extension. In this work there is need of the trained investigator to discover the natural laws which underlie the phenomena of plant and animal life, and also of educated farmers with skill and intelligence to receive principles and apply them in practical farming.

These courses are so arranged as to furnish a good foundation upon which the student may build a successful career as a farmer, or develop into a specialist along some line pertaining to the farming industry. The studies to be pursued are recognized as being those necessary to equip the student for the highest order of work and for the greatest usefulness.

The College farm consists of two hundred and sixty-five acres of land, which is operated by the Maryland Agricultural Experiment Station. Students of the Agricultural Course are made acquainted with the work of the Station from time to time, and because of the College and Station's close association an excellent opportunity is afforded the student to study the cultivation and growing of crops, the application of manures and fertilizers, the care of stock, the selection of seed from growing crops, the judging of the several classes of animals and all the work of the practical farmer.

DIVISION OF AGRONOMY.

The Division of Agronomy takes up the agricultural work pertaining to the field and its crops. A number of courses are offered. These treat of farm crops, their classification, adaptation to soil and climate and methods of culture; soils, their properties, and how to care for them and make them more productive and fertile by crop rotation, and by the application of manures and fertilizers;

farm management, how to make the farm a source of pleasure and profit by employing economic business principles and practices; farm machinery, the kind of tools to use for preparing the land and for cultivating and harvesting the crops. A new soils laboratory has been added to this Department. In this laboratory the student has an excellent opportunity to study the physical properties of the different kinds of soils. A separate desk with ample apparatus is provided each student to perform experiments for himself.

COURSES OFFERED.

1. Elementary Agronomy. This is an introductory course designed to acquaint the young student with the fundamental principles of good farm practice in the handling of soils and the profitable production of farm crops. At the same time it seeks to develop an interest in improved agriculture by showing its capabilities under proper management. Instruction is given by field and laboratory exercises with explanatory lectures.

Sub-Freshman Year—Third Term, 2 practical periods per week.

2. Farm Crops. In this course the production of farm crops is considered in detail as to history, uses and requirements, local adaptations, varieties, fertilization, cultivation and harvesting. A special feature is the study of crop improvement by breeding and selection. Very much of this work is of a practical nature in the laboratory or on the farm.

The texts used are Morrow and Hunt's "Soils and Crops," Hunt's "The Cereals in America," Shamel's "Corn Judging."

Freshman Year—Third Term, 1 theoretical and 4 practical periods per week.

Sophomore and First Year—Third Term, 2 theoretical and 4 practical periods per week.

3. Soils. The study of the physical and chemical conditions of the soil in their relation to profitable agriculture. The soil is the basis of all agriculture, and a knowledge of its properties and func-

tions cannot be too highly emphasized. The study of this important subject is conducted by means of lectures, text-books, laboratory and field work. No State in the Union possesses a greater variety of soils than Maryland, and great attention is paid to the study of soil types in their relation to profitable agriculture.

A well-equipped soils laboratory and the wide variety of soils found on the College farm offer exceptional advantages in the theoretical and practical study of this important subject.

The text-book used is "The Soil," by King.

Sophomore and First Year—First and Second Term, 2 theoretical and 4 practical periods per week.

4. Farm Drainage. Practical work in open ditching and under drains is provided for the students on the Experiment Station farm. Special attention is given to the principles and practice of tile drainage.

The text-book used in this course is Waring's "Drainage for Profit and Health."

Sophomore and First Year—Third Term, 2 theoretical and 4 practical periods per week.

5. Plant Production. This course is intended only for those students who are specializing in agronomy. It consists of field and laboratory work in the study of the handling of fall-sown and fall-harvested crops. Great attention is given in this course to a careful note-taking and study of the results obtained in breeding work in corn and other fall maturing crops on the Experiment Station farm.

Junior and Second Year—First Term, 3 theoretical and 4 practical periods per week.

6. Fertilizers. Of vital interest to the eastern and southern farmer of the present day is the fertilizing question. Between it and the profit and loss account is a very close connection, and frequently a lack of knowledge of the subject entails upon the farmer both the loss of money paid and of the possible increase of the crop. In this course the subject is developed logically from the needs of the plant and the efficiency of the soil to the selecting of the proper

plant foods for each crop under varying conditions of soil and climate. Special attention is given to the home-mixing of fertilizers.

Sophomore and Second Year—Third Term, 2 theoretical and 4 practical periods per week.

7. Farm Machinery. Lectures and practical work.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

Second Year—First Term, 2 theoretical and 4 practical periods per week.

8. Farm Management. Lectures and practical work.

Junior and Second Year—First Term, 2 theoretical periods per week.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

9. Advanced Work in Crop Production. Lectures and practical work.

Senior Year—First and Third Term, 3 theoretical and 4 practical periods per week.

Second Year—Third Term, 3 theoretical and 4 practical periods per week.

10. Advanced Work in Soils. Lectures and practical work.

Senior Year—First and Third Term, 3 theoretical and 4 practical periods per week.

Second Year—Third Term, 3 theoretical and 4 practical periods per week.

11. Grain Judging. This course consists of a critical comparative study of the cereals and other farm seeds from the standpoint of market grading and fitness for seed purposes. It is designed to familiarize the student so with the subject that he may not only handle his own crops to the best advantage, but may also be qualified to act as a judge at county fairs, grain shows, etc. Instruction is given by means of laboratory practice and lectures.

Second Year—Second Term, 2 theoretical and 4 practical periods per week.

12. THESIS AND RESEARCH. To be arranged for with the head of the Department.

Junior Year—Third Term, 2 practical periods per week.

Senior Year—First Term, 2 practical periods per week; Second Term, 4 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

GEOLOGY.

COURSES OFFERED.

13. GEOLOGY. Attention is given chiefly to physical geology. The latter half of the term is devoted to the geology of Maryland, especially as affecting the character of the soils, mineral wealth and other economic conditions of the State. Instruction is given by means of text-book work, lectures and field excursions.

Shaler's "First Book in Geology" is used as a text-book. The reports of the Maryland Geological Survey are used for reference.

Freshman Year—First Term, 4 theoretical and 2 practical periods per week.

GEOGRAPHY,

COURSES OFFERED.

14. PHYSICAL GEOGRAPHY. A general view of phenomena and their mutual relations.

Preparatory Year—Second Term, 4 practical periods per week.

DIVISION OF ANIMAL HUSBANDRY.

The Division of Animal Husbandry stands for all lines of work which pertain to the judging, selecting, breeding, feeding, development, care and management of the various breeds and classes of

domesticated animals. Good herds of stock are being established at the Maryland Agricultural Experiment Station which are of use to the student in his studies. In addition to the supply of stock on the farm the proximity of the College to Washington and Baltimore makes it possible for the student to get excellent material for study. The Heurich dairy farm, close by, furnishes an excellent example in dairy farming. It is quite evident that there is but one way to make a young man a proficient judge of live stock, and that is by training the eye. In all of the lecture and laboratory work outlined in the courses the work is demonstrated with living specimens.

New dairy barns are erected at the Experiment Station. These are models of sanitation. A well lighted and heated pavilion for judging live stock is a recent addition to the equipment.

A growing library of herd-books is available to the student of pedigrees. These books give a fund of information concerning heredity, fecundity and other breed characteristics.

COURSES OFFERED.

20. ELEMENTARY ANIMAL HUSBANDRY. This course consists of lectures and practical demonstrations in the judging, selecting and feeding for specific purposes of certain classes of domestic animals, together with a very elementary course in dairying.

Preparatory Year—First Term, 2 practical periods per week.

21. BREEDS AND SCORING. This course is devoted to the detailed study of the breeds of live stock. The practical work commences with a study of the animal form by the use of the score-card. Especial attention is given to the relation of form to function. First, the productive types are firmly fixed in the student's mind; then he takes up more particularly breed characteristics.

Text-books: "Types and Breeds of Farm Animals," by Plumb; and "Judging Live Stock," by Craig.

Freshman and First Year—First Term, 1 theoretical and 2 practical periods per week.

Junior Year—First Term, 1 theoretical and 6 practical periods per week.

22. PRINCIPLES OF BREEDING. This course takes up the principles of breeding, including selection, heredity, atavism, variation, fecundity, in-and-in breeding, cross-breeding and a historical study of the results.

Text-Books: "Stock Breeding," Miles; "Principles of Breeding," Davenport; "Breeding Farm Animals," Marshall.

Junior and Second Year—First Term, 3 theoretical periods per week.

23. LIVE STOCK MANAGEMENT. Lectures are given on the housing, feeding, care and management of dairy cattle, hogs and horses; the housing, feeding, care and management of beef cattle and sheep. The practical work consists of applications of the work in the lectures, and takes up the drawing of barn plans and other stable conveniences.

Sophomore Year—First Term, 2 theoretical and 4 practical periods per week.

24. DAIRYING. Lectures, recitations and practical work.

Text-books: Wing's "Milk and Its Products;" Russell's "Dairy Bacteriology."

Junior and Second Year—Third Term, 3 theoretical and 4 practical periods per week.

Senior Year—First Term, 1 theoretical and 6 practical periods per week.

25. STOCK JUDGING. Special attention is paid to the judging of groups of animals, similar to county and State fair work.

Senior Year—First and Third Term, 4 practical periods per week.

Second Year—Second Term, 4 practical periods per week.

26. ANIMAL NUTRITION. This course embraces the principles and practice of animal feeding. After covering the principles of nutrition, it takes up the composition of feeding stuffs, their combination into properly balanced rations, and the relation between the sustenance of animals and their products. Students entering

this course should have completed courses in organic chemistry and comparative anatomy and physiology.

Text-books: "Feeds and Feeding," Henry; "Feeding of Animals," Jordan.

Junior Year—Second Term, 4 theoretical and 2 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

Senior Year—First Term, 2 theoretical and 4 practical periods per week; Third Term, 3 theoretical and 2 practical periods per week.

Second Year—First and Second Term, 2 theoretical periods per week.

27. Profitable Stock Feeding. This course treats of the feeding of animals in a most practical manner. Special attention is given to the feeding of breeding stock and the fattening of animals for market. There is no special requirement to enter this course, as in course 26.

Text-books: "The Management and Feeding of Cattle," by Thomas Shaw; "Profitable Stockfeeding," by Smith.

Second Year—Second Term, 4 practical periods per week.

28. Farm Poultry. This course takes up the methods of housing, artificial incubation, artificial breeding, feeding of chicks, feeding of laying hens and diseases of poultry.

Text-book: "Poultry Craft," by Robinson.

Senior and Second Year—Second Term, 2 theoretical periods per week.

29. Research and Thesis. Upon lines and subjects to be arranged with the Department.

The object of this work is to develop independence and originality in the student, and also to give him a taste for personal investigation upon lines which are of particular interest to himself. The results of these investigations are usually incorporated in a thesis.

Senior Year—Second Term, 4 practical periods per week; Third Term, 4 theoretical and 4 practical periods per week.

DIVISION OF FORESTRY.

The instruction in Forestry is planned to give to the student, who is fitting himself to take up the practical problems of farm management, a sufficient knowledge of the principles of forestry to enable him to apply to the wood lot or timber tract, which is a part of practically every farm, the same degree of intelligent direction which he is prepared to give to the tilled lands and thus obtain equally satisfactory results.

The following course is offered:

40. FARM FORESTRY. This course includes forest botany, woodlot management, measurement, valuation and utilization of forest crops, fire protection, nursery practice and tree planting. Lectures and field work.

Senior and Second Year—First Term, 2 theoretical and 4 practical periods per week.

BOTANY AND VEGETABLE PATHOLOGY.

PROFESSOR NORTON.
ASSOCIATE PROFESSOR SMITH.

The courses in Botany are intended to give such knowledge of the vegetable kingdom as is a proper element in general culture; to train the student mind in observation, comparison, generalization and other mental processes essential to true scientific methods in any work; and to furnish a basis for practical studies directly connected with agriculture, since plants are the subjects dealt with in the field and garden. In addition to the courses in pure botany, others of special economic trend are given. These are especially for students in the Agricultural and Horticultural Courses, and take up such botanical studies of cultivated plants, plant diseases, etc., as may be useful in practical life to the professional farmer or gardener.

The equipment and means for illustration and demonstration consists of a reference library containing the principal botanical

works needed by students, charts and maps, compound and dissecting microscopes, preserved specimens for illustration and a representative collection of Maryland plants; microtome and other instruments together with reagents and apparatus for histological work and physiological experiments; and a culture room, sterilizers, incubators and other facilities for the study of plant diseases

Advanced students have an opportunity to observe the work being done in the laboratory of Vegetable Pathology and greenhouse of the State Horticultural Department and of the Experiment Station, and, if competent, to assist in the same. Special attention is given to students who wish practice in the treatment of plant diseases, as it is the desire of the Department to encourage young men to engage in this work as a business.

COURSES OFFERED.

60. Plant Life. The course gives the student an idea of the following courses in botany, and is to aid him in deciding later in what studies he wishes to specialize.

Preparatory Year—Third Term, 2 practical periods per week.

61. Elementary Botany. The students familiarize themselves with the commoner plants and their names; and discussions of their ecology and economic importance are taken up.

Sub-Freshman Year—First Term, 2 practical periods per week.

62. Seeds and Weeds. By examination and careful study the student becomes familiar with the ordinary field and garden seeds, and with the weed seeds which are commonly found as adulterants. He is thus enabled to identify these at sight. A study of the common weeds is also pursued.

First Year—First Term, 4 practical periods per week.

63. General Principles. This is an elementary course in the general principles of anatomy, morphology and physiology of the higher plants. The structure and types of seed, root, stem, leaves, flowers and fruit are studied in the laboratory, with a brief con-

sideration of the functions of the different plant organs, a more complete course in plant physiology (66) being given later.

There is also field work, with the manual on the native flora, designed to give a knowledge of the common Maryland plants and their position in the classification of the vegetable kingdom. The ecology of the plants examined in the field is also considered, and includes their relation to soils, water supply, light and other factors in their environment, cross pollination, dissemination of seeds, plant societies, etc. Each student makes a collection of plants from some part of the State.

Bergen and Caldwell's "Practical Botany" is the principal textbook used.

Reference books: Gray's "Field, Forest and Garden Botany," Britton's "Manual," Gray's "New Manual," Britton and Brown's "Illustrated Flora."

Freshman Year—Third Term, 2 theoretical and 4 practical periods per week.

64. Farm Botany. Work similar to that given in 63, with special reference to the agricultural side of botany.

First Year—Third Term, 2 theoretical and 4 practical periods per week.

65. Plant Histology. Laboratory work with the compound microscope, studying the minute structure of the tissues and organs of the various types of plants. Each student prepares a series of sections for study with the microscope, from which he makes a set of outline drawings.

Steven's "Plant Anatomy" and Chamberlain's "Methods in Plant Histology" are the principal books used.

Sophomore Year—First Term, 1 theoretical and 6 practical periods per week.

66. Plant Physiology. Lectures and experiments on the life processes of plants; absorption and transfer of water and food materials, photosynthesis, respiration, growth, movement and reproduction. Special attention is given to the relation of physiological principles to agriculture.

Text-books: Barnes' "Physiology," Osterhaut's "Experiments with Plants."

Sophomore Year—Second Term, 2 theoretical and 4 practical periods per week.

67. Advanced Physiology. This course provides more advanced work in the plant physiological laboratory.

Junior Year—First Term, 6 practical periods per week.

68. Comparative Morphology and Classification. A comparative study of the structure and life history of the principal types of plants from the lowest to the highest, based on miscroscopic studies in the laboratory.

Text-book: Bergen and Davis' "Principles of Botany," Part II. The outline of classification of Engler's Syllabus is followed in general.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

69. Economic Plants. Lectures are given on the names, classification, nativity and uses of the useful and detrimental plants of the world, and field and laboratory studies are made of the common cultivated plants. This is done with a view to enabling the student of horticulture or agriculture to know the scientific names and relationship of the plants with which he comes in contact in his chosen work.

Reference works: Bailey's Gray's "Field, Forest and Garden Botany," Bailey's "Encyclopedia of Horticulture," etc.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

70. Seed Analysis. Practical work in testing seeds for purity and viability, including all methods used in the State Seed Laboratory located at the Experiment Station.

Junior Year—Second Term, 1 theoretical and 6 practical periods per week.

71. Microscopy of Foods and Drugs. The identification of various food and drug products and their adulterants by means of the microscope.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

72. Plant Diseases. A practical study of diseases of plants to enable the student to know them and to understand the methods of control.

Second Year—Third Term, 2 theoretical and 2 practical periods per week.

73. Vegetable Pathology. This includes microscopic and macroscopic examinations of parasitic fungi in their relations to diseases in higher plants, studies of the nature of disease in plants, physiological diseases, etc., together with the best known means for the prevention and control of diseases. Lectures, reference work, laboratory work and experiments in infection and treatment constitute the course.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

74. Vegetable Pathology. This course is an extension of course 73 and is required of Biological students specializing in botany.

Junior Year—Third Term, 1 theoretical and 6 practical periods per week.

75. Elective courses for students of the Biological Course and for post-graduate students are offered in Methods in Plant Pathology. Botanical Microchemistry, Histology of Trees, Weeds and Poisonous Plants, Seed Testing, Taxonomy or advanced work in any of the undergraduate courses before mentioned.

Senior Year—7 theoretical and 12 practical periods per week.

76. Research. Students electing botany as a major in the Senior Year devote a portion of their time to the completion of an

original study of some botanical subject upon which they prepare the graduation thesis. The time scheduled is a minimum.

Senior Year—1 theoretical and 4 practical periods per week.

CHEMISTRY.

PROFESSOR MCDONNELL.

ASSOCIATE PROFESSOR RROUGHTON.

This Department is charged with two distinct classes of work. (1) The State fertilizer, food and lime inspection, and (2) the instruction of students. The State work necessitates the publication of the "Quarterly" bulletin, which is usually made up of the results of the analysis of fertilizers, feeding stuffs, or agricultural lime, and is sent free of charge to all Maryland farmers who apply. Students do no part of the State work, the assistants being college graduates. However, this work serves as a valuable object lesson to the advanced students.

The Chemical Laboratory Building is devoted entirely to chemistry. It is new and, not including basement, is two stories high. On the first floor are the laboratories for the State fertilizer, feed and lime control work, office, lecture room and balance room. On the second floor are three laboratories for the use of students—one for each class—a students' balance room with first-class chemical and assay balances and a supply room. The assay furnaces are in the basement. Each student is provided with a working desk, lockers, reagents and apparatus. Additional apparatus and materials are provided from the supply room, as needed.

The Department is provided with a small, but well-selected, library of standard reference books on chemistry, to which additions are made from time to time.

Instruction in chemistry is begun with the Sophomore Year, three to four periods per week being devoted to lectures and recitations, and two to four periods to practical work in the laboratory by the student, under the supervision of the instructor. In this way

he comes in direct contact with the substances studied, having at hand ample facilities for learning their properties. Special attention is given to the elements and compounds of practical and economic importance, such as the air, water and soil, the elements entering into the composition of plants and animals, the useful metals, etc. The course in the Sophomore Year is intended to give the student that practical and theoretical knowledge of elementary chemistry which is essential in the education of every man, no matter what his vocation. It also serves as a foundation for advanced work in chemistry, if such a course is chosen.

Advanced work in chemistry begins with the Sophomore Year, Third Term, if the Course in Chemistry is selected, and the larger part of the student's time is devoted to some branch of theoretical or practical chemistry during the rest of his course, as outlined elsewhere.

The object of the Course in Chemistry is to prepare the graduate for positions in agricultural colleges, experiment stations, the United States Department of Agriculture, or the various industries which require the services of trained chemists. The demand for our graduates for such positions is far in excess of the supply.

COURSES OFFERED.

80. FARM CHEMISTRY. This course consists of an elementary course in general chemistry, with special reference to the chemistry of plants, animals, fertilizers, etc.

Text-book: Remsen's "Elementary Chemistry."
First Year—2 theoretical and 2 practical periods per week.

81. GENERAL CHEMISTRY. Recitations and practical work in the laboratory, where the student performs the experiments under the direction of the instructors. Qualitative analysis is started in this course.

Text-book: Remsen's "Introduction to the Study of Chemistry."
Sophomore Year—First Term, 4 theoretical and 2 practical

periods per week; Second and Third Term, 3 theoretical and 4 practical periods per week.

82. QUALITATIVE ANALYSIS. Lectures and laboratory work.

Text-book: Seller's "Qualitative Analysis."

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

Junior Year—First Term, 1 theoretical and 8 practical periods per week.

83. QUALITATIVE ANALYSIS. For students taking the Agricultural, Horticultural, Biological and General Courses.

Text-book: Seller's "Qualitative Analysis."

Junior Year—First Term, 1 theoretical and 8 practical periods per week.

84. INORGANIC PREPARATIONS. The preparation and purification of inorganic compounds, fractional crystallization, etc.

Junior Year—First Term, 4 practical periods per week.

85. THEORETICAL CHEMISTRY. A discussion of the fundamental laws and theories of modern chemistry, with their application to problems.

Text-books: Remsen's "Theoretical Chemistry," Talbot and Blanchard's "Electrolytic Dissociation Theory," and Wells' "Chemical Arithmetic."

Junior Year—First Term, 2 theoretical periods per week; Second and Third Term, 1 theoretical period per week.

86. QUANTITATIVE ANALYSIS. Some of the simple determinations, so selected as to illustrate the general principles of the subject, are given. Neatness and accuracy are insisted upon in the laboratory, and in the conference period the chemistry and mathematics of each determination are thoroughly discussed.

Text-book: Olsen's "Quantitative Analysis."

Junior Year—Second Term, 1 conference and 12 practical periods per week.

87. Quantitative Analysis. For students taking the Agricultural, Biological and General Courses. A brief course illustrating some of the general principles in the quantitative study of chemistry. In the latter part of the course the agricultural students are given the option of the analysis of fertilizers, feeds, butter, milk, etc.

Text-book: Lincoln and Walton's "Quantitative Analysis."

Junior Year—Second Term, 1 conference and 6 practical periods per week; Third Term, 1 conference and 4 practical periods per week.

Senior Year—First Term, 4 practical periods per week.

88. Organic Chemistry. Recitations and lectures.

Text-book: Remsen's "Organic Chemistry."

Junior Year—3 theoretical periods per week.

89. Mineralogy. This is a course in determinative mineralogy. The more important minerals are identified by their more characteristic physical and chemical properties, the blow-pipe being an important aid.

Text-book: Brush and Penfield's "Determinative Mineralogy and Blowpipe Analysis."

Junior Year—First Term, 1 theoretical and 4 practical periods per week.

90. Organic Preparations. The preparation in the laboratory of some of the typical organic compounds, determination of boiling and melting points, lowering of freezing points by substances in solution, determination of vapor densities, and combustion methods for determination of carbon, hydrogen and nitrogen.

Reference books: Levy's "Organische Præparate," Remsen's "Organic Chemistry," and Gattermann's "Practical Methods of Organic Chemistry," translated by Schober.

Senior Year—Second Term, 16 practical periods per week.

91. VOLUMETRIC ANALYSIS AND ASSAYING.. This course is mostly acidimetry and alkalimetry, iodometric, oxidation, reduction and precipitation methods and the fire assay of gold, silver and lead ores.

Reference books: Sutton's "Volumetric Analysis" and Brown's "Manual of Assaying."

Junior Year—Third Term, 2 theoretical and 10 practical periods per week.

92. AGRICULTURAL CHEMISTRY. The chemistry of soils, fertilizers, plant life, animal life, etc.

Text-book: Ingle's "Manual of Agricultural Chemistry."

Senior Year—First Term, 4 theoretical periods per week.

93. AGRICULTURAL CHEMICAL ANALYSIS. This is a thorough course in the analysis of fertilizers and fertilizing materials, feeding stuffs, butter, milk, sugar, starch, etc.

Text-book: "Methods of Analysis of the Association of Official Agricultural Chemists."

Senior Year—First Term, 24 practical periods per week.

94. INDUSTRIAL, PHYSICAL AND ELECTROLYTIC CHEMISTRY. In this course the student becomes familiar with the advanced theories of chemistry and with some of the methods employed by research chemists. He also receives training in the practical methods employed in various chemical industries. Visits are made to ice, fermentation and gas plants; also to fertilizer, glass, iron, steel and white lead works.

Text-books: Jones' "Physical Chemistry," Smith's "Electrolytic Chemistry," and Thorpe's "Outlines of Industrial Chemistry."

Senior Year—Second Term, 6 theoretical and 4 practical periods per week; Third Term, 5 theoretical and 6 practical periods per week.

95. RESEARCH. This will occupy nearly all the student's time in the laboratory. The results will be embodied in the graduating thesis.

Senior Year—Third Term, 20 practical periods per week.

The periods mentioned for practical work in the laboratory are intended to be a minimum. The best students put in considerably more time than this, the laboratories being open to advanced students till 5 o'clock in the afternoons, and on Saturdays till noon. Energetic students are glad to avail themselves of these opportunities.

CIVIL ENGINEERING.

PROFESSOR TALIAFERRO.

MR. MCKAY.

The subjects pertaining to civil engineering are arranged with the object of emphasizing the fundamental principles through lectures and recitations in the class-room, supplemented by practical exercises in the field, drafting room and laboratory. Self-reliance being an essential factor in the success of an engineer, the student is encouraged in every way to develop this habit.

EQUIPMENT. In addition to minor engineering instruments, etc., the Department is at present equipped with three compasses, four transits and four levels.

The experimental laboratory contains a thousand pound Riehle cement testing machine and a hundred thousand pound Riehle machine for making tensile and other tests of the various kinds of materials. A description of this latter machine will be found on page 76, it having been purchased for the use of the Civil and Mechanical Engineering Departments. A description of the drafting and

blue print rooms used by the Civil Engineering Department will also be found on pages 76 and 77.

Some hydraulic apparatus of a character suited to the needs of the Department has been installed and other apparatus will be purchased as the funds permit.

Tours of Inspection—During the session members of the Senior and Junior classes, accompanied by an instructor, take trips for the purpose of making an examination of the different types of modern engineering construction.

COURSES OFFERED.

The subjects outlined, without exception, constitute a portion of the curriculum of students in the Civil Engineering Course.

100. Elementary Mechanics. The elements of statics dealing with the composition and resolution of forces, moments, couples, simple machines and laws of friction. The elements of dynamics, dealing with velocity, acceleration, laws of motion, work, energy and applications to simple problems.

Freshman Year—Second Term, 4 theoretical periods per week.

101. Elementary Surveying. This course is intended to meet the needs of all students, except those in the Mechanical Engineering Course. It includes the use of the compass, transit and level, one or more methods of land surveying, the plotting and computing of areas, leveling and topographical surveying.

Texts: Robbin's "Elementary Treatise on Surveying," and notes.

Freshman Year—Third Term, 2 theoretical and 4 practical periods per week.

Senior Year—Third Term, 4 practical periods per week.

102. Surveying. This course includes the use and adjustment of engineering instruments, the methods of land surveying, the plotting and computing of areas, dividing of land, the theory of the stadia, true meridian lines, leveling, topographical surveying, railroad curves and cross sectioning.

Texts: Hosmer and Breed's "The Principles and Practice of Surveying," and Pence & Ketchum's "Field Manual."

Sophomore Year—First Term, 4 practical periods per week; Second Term, 3 theoretical periods per week; Third Term, 1 theoretical and 4 practical periods per week.

Junior Year—First Term, 4 theoretical and 4 practical periods per week.

103. General Engineering Drawing. Isometric and cabinet projections. Perspective. Water coloring. Paper stretching. Blue printing. Ornamental lettering, round writing and title work. Floor plans, elevations and architectural details. Mapping contours and profiling. Conventional signs.

Junior Year—First and Second Term, 8 practical periods per week; Third Term, 4 practical periods per week.

104. Railway Engineering. A study is made of preliminary and location surveys, cross sectioning, calculation of quantities, etc.

Text: Allen's "Railroad Curves and Earthwork."

Junior Year—Second and Third Term, 3 theoretical periods per week.

105. Bridge and Structural Design. This course includes the complete design and detailing of a steel roof truss and a plate girder; the detailing from standard commercial drawing sheets of floor beams, girders and columns; and the complete design of a bridge truss of either the Warren or Pratt type. The stresses are determined by both analytical and graphic methods.

Texts: Merriman and Jacoby's "Stresses," Cooper's "Bridge Specifications," "Cambria Hand Book," Thompson's "Bridge and Structural Design," Merriman and Jacoby's "Bridge Design."

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

106. Mechanics of Materials. This course treats of the elasticity and resistance of materials of construction, and the mechanics of beams, columns and shafts.

Text: Merriman's "Mechanics of Materials."

Junior Year—Second Term, 3 theoretical periods per week; Third Term, 5 theoretical periods per week.

107. Hydraulics. The principles of hydraulics, flow through pipes, water supply, etc., are discussed in this course.

Text: Merriman's "Hydraulics."

Senior Year—First Term, 3 theoretical periods per week; Second Term, 5 theoretical periods per week.

108. Highway Engineering. This course includes the location, construction and maintenance of roads.

Texts: Spalding's "Roads and Pavements," and the reports of the Highway Division of the Maryland Geological Survey.

Senior Year—First Term, 4 theoretical periods per week.

109. Estimates of Cost. Lectures are given on the methods of estimating cost.

Senior Year—Third Term, 1 theoretical and 2 practical periods per week.

110. Concrete. Lectures on concrete and concrete construction.

Senior Year—Third Term, 2 theoretical periods per week.

111. Practical Problems. The necessity for practical work on the part of those desiring to enter upon engineering as a profession is obvious. To meet this condition a number of hours have been scheduled for field and laboratory work in practical problems relating to engineering. The scheduled hours constitute a minimum, the student being encouraged to give as much more of his time as is possible to problems of this character.

Junior Year—Third Term, 8 practical periods per week.

Senior Year—First Term, 12 practical periods per week; Second and Third Term, 4 practical periods per week.

112. Computing. This course is practical in its nature and includes many of the methods of computation used in the various branches of engineering.

Senior Year—Second Term, 6 practical periods per week.

113. THESIS. This involves a study of some selected problem in engineering.

Senior Year—Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

ELECTRICAL ENGINEERING AND PHYSICS.

PROFESSOR CREESE.
MR. CLARK.

ELECTRICAL ENGINEERING.

The work of the Electrical Engineering Course is so arranged as to give the student a thorough understanding of the fundamental principles of the various branches of electrical engineering, and at the same time to teach him to apply these principles to the practical problems with which the engineer has to deal. This purpose is carried out by means of lectures and recitations in the class-room, supplemented by practical work in the laboratories and drawing room.

EQUIPMENT. The Electrical Engineering Laboratories are located in the east wing of the new engineering building. The rooms on the first floor are used for lectures, recitations and experimental demonstrations by the instructor; a room on the second floor is equipped with apparatus for experimental work in telephone engineering; and the basement contains the dynamo room and the electrical engineering testing room.

The electrical engineering testing room is fitted up with such appliances as are used to the best advantage in engineering practice. Special effort has been made to purchase only the best instruments, as the use of poorer grades influences the student unfavorably. With poor instruments he cannot be taught to do satisfactory work and he becomes careless in the handling of them.

Among other things the following apparatus has been purchased for the testing laboratory:

A Leeds and Northrop potentiometer and Weston standard voltmeter and ammeter for calibrating the various portable measuring instruments used in the laboratory. A Queen & Co. standard photometer, for measuring the distribution of light from incandescent lamps, with all the necessary instruments and adjustments, including a Lummer-Brodhun photometer screen and carriage and a universal rotating socket for the test lamp. A large number of portable ammeters, voltmeters, and indicating wattmeters for direct and alternating current measurements; standard curve drawing voltmeter and ammeter; electrostatic voltmeter; frequency meters; silver and copper voltameters; Siemen's type electrodynamometer; watthourmeters, both direct and alternating current. A Leeds and Northrop standard portable testing set; heating devices; condensers; multiple circuit ammeter and voltmeter switches; tachometers. The above instruments were obtained from the General Electric Co., Queen & Co., Siemens and Halske, Westinghouse Electric and Manufacturing Co., and the Weston Electrical Instrument Co. In addition there are D'Arsonval galvanometers, both ballistic and light movement, furnished with lamp and scale; standard resistance boxes and bridges, including a very accurate decade resistance box and a decade resistance and Wheatstone Bridge; double and single contact keys, commutative keys, condenser keys, etc.

The lamps used for experimental purposes include direct and alternating current multiple carbon arc, magnetite arc, mercury and nernst lamps.

A General Electric Co. turbine, direct connected to a 35 kilowatt compound generator, has been installed for testing purposes in the Electrical and Mechanical Engineering Departments. This may be used in connection with the college lighting plant when needed.

The laboratory is so wired that connection may be made readily with any part of the College lighting plant, with the turbo-generator or with any of the apparatus in the dynamo room.

The dynamo room contains the following: A 10 kilowatt rotary converter of the latest type with speed limit and end play devices, to be used as a synchronous motor and as an alternating current

generator for testing purposes. A 5 horse-power variable speed commutating pole motor. A 7.5 kilowatt, 60 cycle, 220 volt, alternating current generator designed to operate either as a polyphase alternating current generator, synchronous motor, frequency changer, constant speed induction motor, or variable speed induction motor; the following parts are supplied with the set to make possible its operation in any of the above named ways;—a stationary armature for use either as an alternating current generator or as an induction motor field; a revolving field; a squirrel cage induction motor rotor with starting compensator having self-contained switches; an induction motor rotor with internal starting resistance; and an induction motor rotor with 3 phase collector rings, external resistance, and controller. A 2 kilowatt booster set, consisting of a series motor and shunt generator with armatures mounted on the same shaft. A 5 horse-power compound direct current motor and a 1.5 horse-power shunt motor fully enclosed. A 7.5 kilowatt, 120 volt, 3 phase self-excited generator direct connected to a 115 volt compound direct current motor. A motor-generator set consisting of a 3.6 horse-power shunt motor direct connected to a 2 kilowatt compound generator. A 3 horse-power, 3 phase induction motor. A 0.5 kilowatt shunt generator belt connected to a 0.5 horse-power variable speed shunt motor. Two 2 kilowatt transformers to transform power from 110 or 220 volts to 1100 or 2200 volts. Various types of starting rheostats with automatic overload and no voltage release; field rheostats. The above apparatus was made by the General Electric Co., the Westinghouse Electric & Manufacturing Co., the Crocker-Wheeler Co., Western Electric Co., and Reliance Electric and Engineering Co.

The main switchboards, consisting of two blue Vermont marble panels on pipe supports, are used to mount the necessary circuit breaker, rheostats, switches, etc., to control the generators and motors as well as the various circuits in the dynamo room and testing laboratory. Wire and water rheostats are arranged for load and regulation. Portable lamp-boards are so arranged that they may receive, at the proper voltage, from 0.04 to 100 amperes current. Portable ammeter, voltmeter and wattmeter switchboards have been constructed for use in machine tests. In addition to the special electrical engineering equipment, the College lighting plant

will be used for illustrative and experimental purposes. This plant contains, together with other apparatus useful in teaching electrical engineering, two Bullock generators of 40 kilowatts total capacity, and a switchboard equipped with a number of Weston ammeters, voltmeters and circuit breakers, and various types of rheostats.

An 8-inch Waltham bench lathe, with all the necessary attachments, has been installed in the dynamo room for the use of students in practical thesis work, and for making small articles, such as binding posts, connectors, etc., for use in the laboratories.

The telephone laboratory is equipped with two demonstration sets which were made by the Western Electric Co.

The magneto set consists of an oak panel upon which is mounted the following apparatus: Two line circuits with combined jacks and signals; double wound supervisory drops; complete cord circuits including ringing and listening keys, operator's telephone set, magneto generator, etc. On one line circuit is connected a wall type subscriber's set, and on the other, a desk set.

The common battery set consists of an oak panel carrying the following equipment: Two line circuits with lamp signals; complete cord circuits, including ringing and listening keys, operator's telephone set, magneto generator, split repeating coils, condensers, retardation coil, supervisory lamp, etc. On one of the line circuits is connected a wall type subscriber's set, and on the other a desk set.

Both panels have all the wiring exposed to enable the student to make a complete study of these two principal types of telephone exchanges.

COURSES OFFERED.

The subjects outlined constitute the work in electrical engineering.

120. ELEMENTARY ELECTRICITY. This subject includes: Static electricity, dealing with the phenomena of electricity in its potential form, and the conception of electric potential, quantity, capacity, etc.; kinetic electricity, including the study of the fundamental laws and units, as Ohm's Law, Joules' Law, units of current, electro-motive force, resistance, etc.; theory of magnetism, with its

phenomena and forces; and electro-magnetism, which is the foundation for dynamo electric machine design and construction.

Text: Nichols and Franklin's "Electricity and Magnetism."

Sophomore Year—Second and Third Term, 3 theoretical periods per week.

121. Electro-Magnetism and Construction of Dynamos. Beginning with the Junior Year and extending throughout the course, the principles involved in the construction and operation of both direct and alternating current dynamos and motors are taught. In teaching this subject, especial care is exercised that the mathematical and graphical developments shall be concise and logical. The direct current machine is first examined, and this results in a discussion of the different forms of armature, their windings, cores, commutators, etc.; the various fields; the methods of arranging the windings for different purposes; the shape and material of the magnetic circuits; the bearings, shafts, and bed-plates; the methods of insulation; a full description of the materials of construction; the selection of types suited to the performance of specific duties; and the proper method for installing and operating. The characteristic curves and efficiencies of the different types are also illustrated at some length.

Text: Franklin and Esty's "Dynamo Electric Machinery."

Junior Year—First and Third Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

122. Alternating Currents and Alternating Current Machinery. A complete study is made of the fundamental phenomena and theories dealing with the effects of alternating currents, both single-phase and poly-phase. Included in this course there are a large number of problems, both analytical and graphical, which are especially valuable for giving a clear appreciation of the effects of self-inductance, mutual-inductance, and capacity in single-phase and poly-phase alternating current circuits.

The theory, construction and practical applications of single-phase and poly-phase alternating current machinery, which includes generators, synchronous, induction and repulsion motors, rotary converters, transformers, regulators, etc., are taken in detail.

The fundamental principles of the machinery are developed in the class-room and applied concurrently in the laboratory and designing room with special reference to their practical utilization.

Texts: Franklin and Esty's "Alternating Currents," McAllister's "Alternating Current Motors," and Karapetoff's "Electric Circuit."

Senior Year—First and Third Term, 5 theoretical periods per week; Second Term, 3 theoretical periods per week.

123. Electric Lighting and Power Plants. This work begins with the study of the different systems of distribution used in arc and incandescent lighting, and the discussion of the advantages and disadvantages of each from both financial and engineering standpoints. Attention is given to the best methods of obtaining good regulation, as upon this satisfactory lighting service depends. The proper arrangement and wiring of switchboards and the instruments which they contain, as well as the latest methods of protection from lightning, are treated in detail.

The student is made familiar with the manufacture and characteristics of the incandescent arc and many new forms of electric lamps; the selection of lamps for specific commercial duties; the principles underlying correct interior and exterior illumination; the manufacture of cables for underground work; and the materials used in overhead and conduit systems of distribution.

The proper arrangement, the type and the size of boilers, engines and dynamos in a central station for lighting and power purposes, are obtained by the study of typical plants in this country and abroad. Many problems involving the calculation of the wire and materials needed for the various system of distribution are given. These problems require for their solution a knowledge of the rules of the Underwriters' Association."

Text: Franklin's "Electric Lighting."

Senior Year—First and Second Term, 2 theoretical periods per week.

124. Telephones and Telegraphs. This subject deals with the applications of electricity to telephony and telegraphy, with the details and construction of the instruments, switchboards and line work. In this course are included a study of telephone receivers

and transmitters; the multiple switchboard; common battery circuits; manual and automatic exchanges; traffic regulation; intercommunicating systems; line construction; the effects of self-inductance, capacity and other disturbing influences; location of faults; simplex, duplex and quadruplex telegraphy; wireless telegraphy; and simultaneous telegraphy.

Text: Miller's "American Telephone Practice."

Senior Year—Second and Third Term, 2 theoretical periods per week.

125. Electric Railway Engineering. The student is made thoroughly familiar with the following topics relating to electric railway work; the power, capacity, arrangement and methods of installation of the engines and boilers; the type, method of control and disposition of the generators in the dynamo room; the proper arrangement of the switchboards and the instruments to be used; the line work, including the various trolley and conduit constructions; the method of laying the track, with the weight and bonding of the rails; the motor equipment and car wiring; the type, power and control of the motors and the requirements for special conditions; the applications of the storage battery; the cost of installation and operation of the power plant; the management of the plant; and the modifications required for high speed electric traction.

Text: Sheldon and Hausman's "Electric Traction and Transmission Engineering."

Senior Year—Third Term, 3 theoretical periods per week.

126. Primary and Secondary Batteries. The theories involved in the primary cell are developed and attention is directed to the various measurements and calculations pertaining to the subject. A study is made of the construction and use of the latest types of commercial cells.

Following the preliminary work on the primary cell, the study of the lead storage battery is taken up in detail. The work includes the general theory, the mechanical construction and the commercial use of the various types of cells, together with the chemical and electrical actions encountered. In connection with the stor-

age cell a study is made of the construction and use of the different forms of the auxiliary apparatus, such as end-cell switches, boosters, etc.

Text: Lyndon's "Storage Battery Engineering."

Junior Year—Third Term, 2 theoretical periods per week.

127. Electrical Engineering Laboratory. The study of direct current instruments. The measurements of resistance, current, and electromotive force; the use of the Wheatstone Bridge and galvanometers; loop and capacity tests of cables; calibration of instruments; study of direct current machines; testing of arc lamps; photometry; the operation of machinery and determination of the characteristic curves and efficiencies of machines.

Junior Year—First and Second Term, 4 practical periods per week; Third Term, 6 practical periods per week.

128. Electrical Engineering Laboratory. The determination of inductance, impedance, condensance, etc.; measurement of power in alternating current circuits; regulation and efficiency tests of alternators and transformers; parallel operation of alternators; phase characteristics, power factor, etc., of synchronous motors; polyphase transformation; mesh and star connections of transformers; tests of induction and synchronous motors.

Senior Year—First and Second Term, 8 practical periods per week; Third Term, 6 practical periods per week.

129. Electric Machine Design. Practical calculation of dynamos, including detail calculations of field cores, armature windings, frames, commutator, armature core and collecting devices.

Junior Year—Third Term, 6 practical periods per week.

130. Electric Machine Design. This work includes the design of reactance coils, transformers, induction motors, alternator armatures, field windings and frames, and special problems in the transmission of power.

Senior Year—Third Term, 6 practical periods per week.

131. Thesis. During the Senior Year each student is required to prepare a graduation thesis. In the preparation of the thesis

the student is given the opportunity to apply his training to original research.

Senior Year—8 practical periods per week.

PHYSICS.

The physical lecture room and laboratory are located in the new engineering building, in rooms excellently adapted to the purpose. The Department is well supplied with apparatus for lecture room demonstrations and for students' individual laboratory work, and new pieces of apparatus are added to the equipment each year.

COURSES OFFERED.

140. ELEMENTARY PHYSICS. The course consists of lectures, recitations and experimental demonstrations by the instructor on the mechanics of solids, liquids and gases. The student is required to work a number of problems, and his attention is directed to the practical application of the principles studied.

Text: Carhart & Chute's "Principles of Physics."

Sub-Freshman Year—3 theoretical periods per week.

141. PHYSICS. The course begins with a review of mechanics, after which heat, electricity and magnetism, sound and light, are taken up successively by lectures, recitations, problems and demonstrations. A knowledge of the elements of plane trigonometry is required for entrance. The laboratory work consists of a series of experiments, mainly quantitative, designed to illustrate and verify the laws and principles considered in the class-room and to develop in the student skill in manipulation and accuracy in making precise measurements.

Texts: Carhart's "College Physics" and Ames and Bliss' "Manual of Experiments in Physics."

Sophomore Year—First and Third Term, 3 theoretical and 4 practical periods per week; Second Term, 3 theoretical and 2 practical periods per week.

142. PHYSICS. Advanced work will be provided for students who have completed the preceding courses, and who wish to continue the study of physics.

ENGLISH AND CIVICS.

PROFESSOR BOMBERGER.
ASSOCIATE PROFESSOR RICHARDSON.
MR. BYRD.

This Department, as its name implies, covers the work of two distinct courses of instruction. It seeks to prepare the student by systematic training in the history, structure and use of the English language, for the highest development of his mental powers and for the complex duties and relations of life; and, further, to fit him for the active and intelligent exercise of his rights and duties as a man and citizen.

The course in English, of a necessity, lies at the base of all other courses of instruction. Clear and comprehensive knowledge of his mother tongue is absolutely necessary to the student in pursuing any line of college work. Nor is this all; for aside from the practical value of the English instruction as an aid to other branches of study, and as a preparation for business and profession, it is to his training in this Department, in connection with his study of history, the classics and modern languages, that the student must look for the acquiring of the general culture which has always been the distinguishing mark of the liberally educated man. The English work, which is common to all courses, consists of the study of the structure of the English language, English and American literature, theoretical and practical rhetoric, logic, psychology, critical reading and analysis, and constant exercise in expression, composition and theme writing.

The course in civics is especially designed to prepare young men for the active duties of citizenship. The first year is devoted to the study of general history, followed by the principles of civil government, constitutional history, political economy, with special refer-

ence to current, social and industrial problems, and, finally, lectures on the elements of business and international law.

ENGLISH.

COURSES OFFERED.

160. PREPARATORY ENGLISH. Technical grammar, spelling and composition writing.

Text used: Maxwell's "Exercise in English."

Preparatory Year—5 theoretical periods per week.

161. SUB-FRESHMAN ENGLISH. Thorough review of technical grammar, practical word analysis, composition and letter writing.

Texts used: Kittridge & Arnold's Series and Swinton's "Word Analysis."

Sub-Freshman and First Year—5 theoretical periods per week.

162. FARM LITERATURE. A reading course in farm periodicals and other agricultural literature, with instruction in the taking and systematization of notes.

First and Second Year—2 practical periods per week.

This course is open as an elective to the Short Winter Course students during their stay at the College.

163. RHETORIC AND COMPOSITION. Principles and practice of rhetoric and composition. Work in rhetoric consists of a study of the principles of diction, the sentence, the paragraph, the discourse, forms of prose, the nature, form and structure of poetry, and readings from leading American authors.

Work in composition consists of twelve themes, especially adapted to the requirements of the class.

Text used: Brooks and Hubbard's "Composition-Rhetoric."

Freshman Year—5 theoretical periods per week.

164. PRACTICAL ENGLISH. Lectures covering special processes in composition.

Freshman Year—First and Second Term, 2 practical periods per week.

165. COMPOSITION. Practice in English composition. Special lectures. Work in composition consists of twelve themes discussing English classics studied in class, or subjects involved in the study of civics.

Sophomore and Second Year—1 theoretical period per week.

166. AMERICAN LITERATURE. A study of the most important writers, with a view to giving the student an exact knowledge of their works.

Text used: Halleck's "American Literature."

Sophomore Year—3 theoretical periods per week.

167. ENGLISH LITERATURE. General study of the history and chief writers of English literature.

Text used: Long's "English Literature."

Junior Year—First and Second Term, 3 theoretical periods per week.

168. LOGIC. Principles and practice of logic.

Text used: Jevon's Hill's "Logic."

Junior Year—Third Term, 3 theoretical periods per week.

169. ADVANCED ENGLISH. An elective course.

Junior Year— 4 theoretical periods per week.

170. COMPOSITION. Advanced work in English composition. Special lectures. Nine themes illustrating special processes.

Junior Year—1 theoretical period per week.

171. ENGLISH CLASSICS. Critical study of English classics.

Senior Year—4 theoretical periods per week.

172. PSYCHOLOGY. Principles of Psychology. Text-book and lectures.

Text used: James' "Psychology."

Senior Year—First Term, 4 theoretical periods per week.

173. PEDAGOGICS. A study of the history of education.
Senior Year—Second and Third Term, 4 theoretical periods per week.

174. COMPOSITION. Special themes illustrating the principles of debate, oration and short story.
Senior Year—1 theoretical period per week.

HISTORY.

COURSES OFFERED.

180. UNITED STATES HISTORY.
Preparatory Year—First and Second Term, 5 theoretical periods per week.

181. ENGLISH HISTORY. Lectures on outlines of English history.
Preparatory Year—Third Term, 5 theoretical periods per week.

182. GENERAL HISTORY. Outlines of general history.
Text used: Myers' "General History."
Sub-Freshman Year—First Term, 2 theoretical periods per week; Second and Third Terms, 3 theoretical periods per week.

183. MODERN EUROPEAN HISTORY.
Text used: Robinson's "European History."
Freshman Year—3 theoretical periods per week.

184. ADVANCED HISTORY. Selected topics. Elective.
Junior Year—4 theoretical periods per week.

CIVICS.

COURSES OFFERED.

200. CIVICS. Civil Government in the United States.
Text used: Hindsdale's "American Government."

Junior Year—First and Second Term, 3 theoretical periods per week.

201. Political Economy. Principles of political economy and industrial development of the United States, economic science and current problems.

Text used: Seager's "Introduction to Economics."

Senior Year—4 theoretical periods per week.

202. Business Law. Lectures on principles of law as used in every-day life and business.

Text used: Huffcut's "Elements of Business Law."

Junior Year—Third Term, 3 theoretical periods per week.

Second Year—Second Term, 3 theoretical periods per week.

203. Advanced Economics. Special study of economic problems. Elective.

Senior Year—4 theoretical periods per week.

204. Advanced Civics. Comparative study of modern governments. Elective.

Senior Year—4 theoretical periods per week.

ENTOMOLOGY AND ZOOLOGY.

PROFESSOR SYMONS.
ASSOCIATE PROFESSOR CORY.

Instruction is given in this Department with a view first, to giving the student the general knowledge of invertebrate and vertebrate zoology, which is necessary as a foundation science for an agricultural education; second, to fit the student in elementary and advanced entomology, both economic and systematic, so that he may pursue this specialty after graduation. A course in economic entomology and zoology is also given to provide those students who are specializing in any of the allied agricultural sciences, with the information which is essential to their ideal development.

Students wishing to take advanced work in invertebrate zoology are advised to select some subject in entomology. As the State and Experiment Station entomological work is conducted through this Department, there are special advantages for students in applied entomology.

The reference library is unusually complete, containing in addition to the standard works, a majority of the principal entomological and zoological publications. The laboratory is supplied with a large collection of insects for the use of students, and is well equipped with microscopes and other apparatus necessary for practical work in entomology and zoology.

The insectaries of the State Horticultural Department and the Maryland Experiment Station are joined to the laboratory, and afford facilities for special investigation to a limited number of advanced students.

COURSES OFFERED.

220. Animal Life and Elementary Entomology. A consideration of animals and insects from a nature study standpoint. These courses are designed to show the student the importance of these subjects and to develop and foster an interest in nature.

Preparatory Year—First Term, 2 practical periods per week.

Sub-Freshman Year—Third Term, 2 practical periods per week.

221. General Zoology. This course is offered to all students taking agriculture and allied sciences, and is introductory to all other work in this Department. A study is made of the general form, characteristics, habits and classification of animals from the lowest to the highest forms. It is designed to give the student that knowledge of animal life without which his education is incomplete.

Freshman Year—Second Term, 3 theoretical and 4 practical periods per week.

222. Invertebrate Zoology. In this course a thorough study will be made of the anatomy, development and classification of in-

vertebrate animals. Special attention is given to those forms which are intimately associated with the development of allied sciences.

Sophomore Year—First and Third Term, 2 theoretical and 2 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week.

223. General Entomology. This course is offered all students who have completed course 221. It consists of a study of insects, their classification, structure and relation to man. The practical work will consist of laboratory studies of the structures of typical forms, and a study in the field of the habits of insects, particularly those which are injurious to crops.

As an aid to this study, the student is required to make a collection of the more common insects which appear in the spring.

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

224. Economic Entomology. This course will embrace a detailed study of the life histories of insects of economic importance and the most approved means of control. Practical work will be given in the preparation and application of insecticides and the operation of spraying machinery, of which the Department has a large assortment.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

225. Economic Entomology. This course is an expansion of course 224 and is required of students in the Biological Course specializing in entomology.

Junior Year—First Term, 1 theoretical and 4 practical periods per week.

226. Vertebrate Zoology. A thorough study of the structure, development, classification and distribution of vertebrates is made in this course. Special attention is given to birds and other vertebrates of economic importance.

Junior Year—Second and Third Term, 1 theoretical and 4 practical periods per week.

227. SYSTEMATIC ENTOMOLOGY. This is designed for students in the Biological Course specializing in entomology. It will consist of a comparative study of insect structures, particularly those used in the arrangement of insects into natural groups.

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

228. SYSTEMATIC ENTOMOLOGY. This course is an expansion of course 227 and is required of students in the Biological Course specializing in entomology.

Junior Year—Third Term, 1 theoretical and 6 practical periods per week.

229. FARM ZOOLOGY. This course is offered to students in the First Year of the two-year courses. It includes a study of reptiles, birds, mammals and other animals of economic importance which commonly occur on the farm.

First Year—Third Term, 2 theoretical periods per week.

230. INSECT PESTS. This course is designed for students in the two-year courses and the various short courses, previous courses in entomology not being prerequisite. The course includes a study of insects from the standpoint of general farm practice.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

231. INSECTICIDES AND SPRAYING. Special attention is given in this course to the principles involved in the application of insecticides. A study is made of the different insecticides and spraying apparatus on the market. In the practical work an opportunity will be given to observe and operate a large number of the spraying machines and apparatus offered for sale. A special spraying laboratory has been fitted for students taking this course.

Second Year—Second Term, 2 theoretical and 2 practical periods per week.

232. APPLIED ENTOMOLOGY. This course is given students in the Horticultural Course who have completed course 224. It includes a more detailed study of some of the insects with which the

trained horticulturist will have to deal, a consideration of the spraying methods used in large fruit plantings, and the control of insect pests in greenhouses and florists' establishments.

Senior Year—Second Term, 2 theoretical and 4 practical periods per week.

233. Animal Parasites. This course is designed especially for students specializing in animal husbandry. The course involves a discussion of the life history and habits of the more important internal and external parasites of domestic animals. It also includes a study of the treatment employed in the control of these pests.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

234. Advanced Entomology. This includes courses open to students specializing in entomology.

(a) Insect Anatomy. A study is made of methods of insect histology in connection with a study of the gross and microscopic anatomy of the body of an insect.

(b) Wing Venation. This course involves a study of the homologies of the wing veins of the several groups of insects, showing how the natural relation of those groups may be traced by means of the veins.

Additional elective courses for students in the Biological Course and for post-graduate students are offered in Insect Taxonomy, Morphology and Ecology, Experimental Methods and Insect Delineation.

Senior Year—7 theoretical and 12 practical periods per week.

235. Entomological Research. Independent research on some definite problem in entomology, the results of which are usually incorporated in the graduation thesis.

Senior Year—1 theoretical and 4 practical periods per week.

HORTICULTURE.

PROFESSOR SYMONS.
PROFESSOR BECKENSTRATER.
PROFESSOR MONROE.
ASSOCIATE PROFESSOR ANSPON.
MR. BURRELL.

Recognizing the great importance of every phase of this subject in the State, a SCHOOL OF HORTICULTURE has been formed in conjunction with the State Horticultural Department during the past year, with a view of offering instruction to students desiring to specialize in either Pomology, Vegetable Culture or Landscape Gardening and Floriculture. The courses in this subject have been therefore revised, providing for general courses in all phases of Horticulture during the Freshman and Sophomore years and permitting them to specialize in either of the above subjects in the Junior and Senior years.

The arrangement of the courses is, of necessity, subject to such adjustment as will advance the best interests of the students. The object in each course will be to give practical and theoretical training in fruit growing, truck farming and commercial landscape gardening and floriculture. Under the present arrangement the specialists in each subject will have greater opportunity to keep familiar with the progress of their work through the practical demonstration and experimental work in the State. Where one man has been required to give all the instruction in horticulture heretofore, four men are now available to give a part of their time to this important work.

The students will be required to do practical work throughout the course, and in addition, they must have spent at least two summers or the equivalent, during the four years' course, in an approved commercial establishment dealing with the subject in which they are specializing. The equipment of each Department is being steadily increased and the orchards, gardens and greenhouses of College and Experiment Station afford unlimited opportunities for practical observation. In addition, the students of each course will

be expected to take trips to selected commercial orchards, truck farms, greenhouses and markets.

The SCHOOL OF HORTICULTURE offers two regular courses: (a) A four-year course leading to the degree of Bachelor of Science; (b) a two-year course for proficiency in which a Certificate is awarded.

The work given in the two-year course will also be more efficient, as for the most part the courses will be given separately from those of the regular four-year students. These students will also have an opportunity to specialize in any phase of horticulture in which they are interested during their second year.

POMOLOGY.

240. INTRODUCTORY HORTICULTURE. This is an introductory course designed to acquaint the student with the materials and problems with which horticulture deals, and to present to the prospective student the field of horticulture as a possibility in which he may find a future career.

Preparatory Year—Third Term, 2 practical periods per week.

241. ELEMENTARY POMOLOGY. An introductory course dealing with the principles of the subject. It is intended for all students in Agriculture and Horticulture, and is prerequisite to all the courses in Pomology. Lectures, recitations and practical exercises.

Freshman and First Year—Third Term, 1 theoretical and 2 practical periods per week.

242. PRINCIPLES OF POMOLOGY. A continuation of course 241. A study of the methods of propagation, pruning and planting.

Sophomore Year—Second Term, 2 theoretical and 4 practical periods per week.

First Year—First and Second Term, 2 theoretical and 4 practical periods per week.

243. COMMERCIAL POMOLOGY. This course considers the harvesting, packing, storing and marketing of fruits. Special stress is given

to transportation and market problems. The leading commercial varieties of fruit are also studied. Lectures, recitations and practical exercises.

Junior and Second Year—First Term, 2 theoretical and 2 practical periods per week.

244. Small Fruits for Home Garden. A study of the special kinds, varieties and seasons of fruits for the home use, and of cultural methods whereby the ripening season may be materiallv lengthened.

Junior and Second Year—Second Term, 1 theoretical and 4 practical periods per week.

245. Commercial Small Fruit Culture. A study of methods of harvesting, packing and marketing small and bush fruits and grapes. Special attention is given market problems and shipping associations.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

246. Practical Pomology. A study of the orchard sites, soils, varieties and planting plans for the orchard; cultivation, cover crops, fertilizers and pruning as practiced in commercial orchards.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

247. Systematic Pomology. This course embraces a study of the evolution and relationship of the economic fruits. It includes descriptions of fruit and the identification of the more common varieties of Maryland. Fruit judging and the selection of fruits for exhibition purposes are also considered: Lectures, recitations and practical exercises.

Senior Year—First Term, 2 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 2 practical periods per week.

248. Systematic Small and Vine Fruit Culture. A study of the development and relationship of the small fruits; including the description, classification and identification of varieties.

Senior Year—First Term, 2 theoretical and 2 practical periods per week.

249. Literature of Fruit Growing. History and growth of horticultural writings. A study of important publications, current horticultural periodicals and methods of research.

Senior Year—Second Term, 1 theoretical and 2 practical periods per week.

250. Advanced Small Fruit Culture. A continuation of course 248, taking up the history, evolution and location of the principal small fruit sections, and a discussion of varieties, planting, training, care and fertilization.

Senior Year—Third Term. 2 theoretical and 4 practical periods per week.

251. Advanced Pomology. Special problems in adaptation, propagation, cultivation and pruning as they arise in commercial orchards.

Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

252. Nut Culture. This course is designed to cover the subject in a general way; it includes the propagation, orchard management and marketing of the leading American nuts.

Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

253. Home Fruit Growing. A study of fruit growing for home consumption. The problems confronting the amateur in the suburban lot are considered. Elective.

Junior and Senior Year—2 theoretical and 2 practical periods per week.

254. Citrus and Sub-Tropical Fruits. A general course in Citrus and sub-tropical fruits of commercial importance. Elective.
Junior and Senior Year—2 theoretical periods per week.

255. Plant Breeding. A general course in the science and art of plant breeding. Observed factors in organic evolution, variation and heredity are considered in so far as they have a bearing upon this subject. The discussion of the various methods of breeding and improvement are accompanied by practice in the orchard and greenhouses.
Senior Year—Second Term, 2 theoretical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

256. Research Work and Thesis. This course is given to test and develop the student's power of observation and initiation. The work will be arranged with each student, individually, and the results will be written up in form of a thesis, which is required of all candidates for the Bachelor of Science Degree.
Senior Year—First and Second Term, 2 practical periods per week; Third Term, 6 practical periods per week.

257. Seminary. At the seminary meetings various problems are presented throughout the year.

258. Post-Graduate Work. An opportunity for advanced work is given to candidates who have the Bachelor of Science Degree.

VEGETABLE CULTURE.

260. Principles of Vegetable Culture. General principles of vegetable growing, including a study of seasonal and cultural requirements, propagation and relative commercial value of the different vegetable crops.
Freshman and First Year—Second Term, 2 practical periods per week.

261. Practical Vegetable Gardening. A course designed to carry out as far as possible in a practical way the different phases of vegetable culture. It includes cropping of land, arranging crops in systematic rotation, sowing, selecting and purchasing of seed, fertilizing crops, practical use of machinery in garden, harvesting of crops with reference to home as well as commercial gardens. Practical work in hotbeds and cold frames. The student will be expected to assist in growing certain vegetable crops.

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

262. Systematic Vegetable Culture. This course includes a systematic study of varieties of the more important vegetable crops and their relative commercial value, and practice in judging and scoring vegetables.

Junior Year—First Term, 2 theoretical and 2 practical periods per week.

263. Literature of Vegetable Culture. History and development of vegetable crops. The method of breeding used in bringing about this development. The work of prominent Vegetable Culturists. A review of vegetable work and bulletins of Experiment Stations and a study of current vegetable publications.

Junior Year—Second and Third Term, 2 theoretical periods per week.

264. Vegetable Growing Under Glass. The use of the different glass structures in vegetable culture. The starting of early plants under glass; forcing vegetables and growing winter crops in greenhouses.

Junior Year—Second Term, 1 theoretical and 8 practical periods per week; Third Term, 1 theoretical and 4 practical periods per week.

Second Year—Second Term, 1 theoretical and 8 practical periods per week.

265. Vegetable Culture and Its Relation to the Canning Industry. Special reference to the vegetable crops and varieties grown for canning.

Junior and Second Year—Third Term, 2 theoretical periods per week.

266. Commercial Vegetable Culture. Harvesting, grading, packing and marketing of vegetables. The seasonal sources of supply of our more important markets. This course includes a study and inspection of Baltimore and Washington markets.

Senior and Second Year—First Term. 3 theoretical and 6 practical periods per week.

267. Advanced Vegetable Culture. A continuation of courses 260 and 261. Prerequisites, courses 260 and 261.

Senior Year—Second and Third Term, 4 theoretical and 4 practical periods per week.

Second Year—Third Term, 4 practical periods per week.

268. Experimental Vegetable Culture. A study of Experiment Station methods. The planning of definite experiments and estimating approximate requirements for execution of plans.

Senior Year—Third Term, 4 theoretical and 4 practical periods per week.

269. Research and Thesis. The prime object of this work is to test the student's power of observation and initiation. The individual student will be required to select some special line of research in Vegetable Culture and submit the same to the head of the Department for approval. The results must be written up for a thesis, which is required of a candidate for the Bachelor of Science Degree.

Senior Year—First and Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

LANDSCAPE GARDENING AND FLORICULTURE.

280. Principles of Landscape Gardening. An elementary course dealing with home surroundings, ornamental plants and their arrangement, with practical work in planning and designing.

Freshman and First Year—First Term, 2 practical periods per week.

281. Ornamentation of Home Grounds. Continuation of course 280. This course deals more in detail with the beautifying of home surroundings.

Sophomore and Second Year—First Term, 2 theoretical and 4 practical periods per week.

282. Aesthetics of Landscape Gardening. A course in the underlying principles of the art, designed to give the student a broad conception of the art.

Junior Year—First Term, 2 theoretical and 2 practical periods per week.

283. Floriculture. This course is devoted to the soil, culture and methods of handling greenhouse plants and flowers on a commercial scale.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

284. Greenhouse Construction. A study of the types of houses, materials and methods of heating and ventilating used in greenhouse construction, with their adaptation to various purposes.

Junior and Second Year—Second Term, 2 theoretical and 2 practical periods per week.

285. Plant Materials. This course comprises a study of the characters, habits, culture and suitability for Landscape work of ornamental trees, shrubs and herbaceous perennials, together with their planting and arrangement.

Junior and Second Year—Third Term, 2 theoretical and 4 practical periods per week.

286. Tree Surgery. A course in the treatment of trees and shrubs, including technical details in pruning to control insect enemies and fungus diseases.

Junior Year—Third Term, 1 theoretical and 4 practical periods per week.

287. Landscape Design. A course dealing with the composition of public parks and private grounds, with practical work in planning and designing.
Senior Year—First Term, 2 theoretical and 4 practical periods per week.

288. Civic Art. This course deals with the principles of Landscape Gardening as applied to city, village and rural design and improvement.
Senior Year—First Term, 2 theoretical and 2 practical periods per week.

289. Planting Plans. This course deals with planting designs and plans, and detailed planting plans for public and private grounds.
Senior Year—Second Term, 2 theoretical and 6 practical periods per week.

290. Floral Decoration. The use of cut flowers and plants in decorations, baskets and designs.
Senior Year—Second Term, 2 practical periods per week.

291. Exotics. In this course a study is made of the tender plants suitable for landscape work.
Senior Year—Third Term, 2 theoretical periods per week.

292. History and Literature of Landscape Gardening. A reference course dealing with the literature and the different stages of development of the art.
Senior Year—Third Term, 2 theoretical periods per week.

293. Landscape Practice. This course takes up the study of grading plans and working drawings, together with specifications and contracts.
Senior Year—Third Term, 2 theoretical and 8 practical periods per week.

294. RESEARCH AND THESIS. The designing, planning and detail planting plans of some practical landscape problem.

Senior Year—First Term, 2 practical periods per week; Second Term, 4 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

LANGUAGES.

PROFESSOR SPENCE.

The Department of Languages embraces the study of three branches: Latin, German and French. All students are required to take the courses in German. Students may elect to take Latin in the Freshman Year in place of History, provided that they have completed the work outlined for the Sub-Freshman Class or its equivalent.

The course of study in Latin is given with two ends in view—first, to train the mind into accurate and close methods of reasoning; second, to give the student a more thorough and comprehensive knowledge of his own language than he could otherwise acquire. Especial attention is paid to Latin forms and terminations and to the derivation of English words from Latin roots.

So large a proportion of modern scientific literature is in German and French that a reading knowledge of these languages has become almost essential to the student pursuing advanced courses in the various spheres of scientific research. Instruction in these branches is given, therefore, to enable the student to translate intelligently the works of French and German masters in the domain of science, for, frequently there are no English versions of their works. As the student becomes more familiar with foreign scientific terms and construction, he is required to translate treatises bearing upon the special line of work which he may be pursuing.

LATIN.

COURSES OFFERED.

300. GRAMMAR AND COMPOSITION. The aim of this course which is given in the Preparatory Year, is to make the student conversant with Latin forms and terminations, and to enable him to read simple Latin prose.

Text-books: Shedd's "Word-value, First Latin Book," Collar and Daniel's "First Year Latin," or Bennett's "First Year Latin."

Preparatory Year—4 theoretical periods per week.

301. SYNTAX AND TRANSLATION. Reading of Cæsar and Sallust with prose composition selected from the text read.

Text-books: To be selected later.

Sub-Freshman Year—3 theoretical periods per week.

Freshman Year—3 theoretical periods per week.

302. MYTHOLOGY, TRANSLATION AND LITERATURE. Reading of Virgil and Horace with lectures on mythology and Latin literature.

Text-books: To be selected later.

Sophomore Year—4 theoretical periods per week.

303. TRANSLATION, PROSODY AND HISTORY. Reading of Cicero, Tacitus and Juvenal, with lectures on Roman life and politics. Elective.

Text-books: To be selected later.

Senior Year—4 theoretical periods per week.

GERMAN.

COURSES OFFERED.

320. GRAMMAR AND CONVERSATION.

Text-book: Bacon's "German Grammar."

Freshman Year—3 theoretical periods per week.

321. TRANSLATION.

Text-books selected from the following: Hauff's "Das Kalte

Herz," Schiller's "Der Neffe als Onkel," Hillern's "Hoher als die Kirche," Grandgent's "Ali Baba and the Forty Thieves," Sybel's "Die Erhebung Europas," Walther's "Algemeine Meereskunde," Northrup's "Geschichte der Neuen Welt," Brant and Day's "Scientific German," Wallentin's "Grundzuge der Naturlehre," and others.

Sophomore Year—3 theoretical periods per week.

322. TRANSLATION. Selected readings from various literary and scientific texts and periodicals.

Junior Year—3 theoretical periods per week.

Senior Year—4 theoretical periods per week.

FRENCH.

COURSES OFFERED.

340. GRAMMAR AND COMPOSITION.

Text-book: Chardenal's "Complete French Course" (Revised).

Junior Year—First and Second Term, 4 theoretical periods per week.

341. TRANSLATION.

Text-books: Super's "French Reader," Rougemont's "La France," Fenelon's "Telemaque."

Junior Year—Third Term, 3 theoretical periods per week.

342. TRANSLATION. Selections from standard authors. Elective.

Senior Year—4 theoretical periods per week.

MATHEMATICS.

PROFESSOR HARRISON.

MR. MCKAY.

Mathematics is the basis upon which scientific information rests. A knowledge of the study is necessary, as much from the utilitarian point of view as from the mental training its acquisition gives. Its

importance as a factor in our College course takes its rise from the former consideration. All instruction in this work is with a view to the equipping of students for the more practical work soon to follow.

The class work in mathematics in the several courses consists of arithmetic, bookkeeping, algebra, geometry (plane and solid), trigonometry, analytic geometry, differential and integral calculus, and their application to mechanics, engineering, physics and surveying.

No matter what vocation a man intends to follow, a knowledge of business forms and methods of systematic accounts is a requisite to success. To be able to use an ordinary compass or transit for the purpose of laying out, dividing and calculating the area of land, or running out lines and leveling for the purpose of drainage, is a necessary accomplishment for every intelligent farmer.

COURSES OFFERED.

360. ARITHMETIC. Review of problems involving mensuration, percentage, interest and proportion.
Text-book: Wentworth-Smith's.
Preparatory Year—2 practical periods per week.
First Year—First Term, 3 theoretical periods per week.

361. BOOKKEEPING. Brief course in double entry.
First Year—Third Term, 4 practical periods per week.

362. ALGEBRA. A thorough course in elementary algebra.
Text-book: Wentworth's.
Preparatory Year—5 theoretical periods per week.
Sub-Freshman Year—4 theoretical periods per week.

363. PLANE GEOMETRY. Books one to five, inclusive.
Text-book: Wentworth's.
Sub-Freshman Year—4 theoretical periods per week.

364. MATHEMATICS. Practical applications of the fundamental laws of elementary mathematics. Lectures will be given on the

subjects considered in this course whenever they are deemed necessary.

Freshman Year—First Term, 2 practical periods per week.

365. Solid Geometry. Books six to eight, inclusive, with selected practical problems.

Text-book: Wentworth's.

Freshman Year—First Term, 4 theoretical periods per week.

366. Trigonometry. Deduction of formulas and practical applications of same in the solution of right and oblique triangles, etc.

Text-book: Wentworth's.

Freshman Year—Second Term, 5 theoretical periods per week; Third Term, 2 theoretical periods per week.

367. Advanced Algebra. Elementary theory of equations, partial fractions, etc.

Text-book: Taylor's.

Freshman Year—Third Term, 3 theoretical periods per week.

368. Analytic Geometry. Geometry of two dimensions, loci of general equations of second order, higher plane curves, etc.

Text-book: Wentworth's.

Sophomore Year—First Term, 5 theoretical periods per week; Second Term, 3 theoretical periods per week.

369. Calculus. A discussion of the methods used in differentiation and integration, and the application of these methods in determining maxima and minima, areas, volumes, moments of inertia, etc.

Text-book: Bowser's.

Sophomore Year—Second Term, 2 theoretical periods per week; Third Term, 5 theoretical periods per week.

Junior Year—First Term, 5 theoretical periods per week.

MECHANICAL ENGINEERING.

PROFESSOR GWINNER.
ASSSOCIATE PROFESSOR CRISP.
MR. WARTHEN.

This Department offers a Course in Mechanical Engineering leading to the degree of Bachelor of Science in Mechanical Engineering. The list of all subjects required to be completed to obtain this degree is given on page 110. It prepares young men to design and construct machinery, to superintend engineering establishments, to become superintendents of construction and to teach mechanical engineering and manual training. For degree of Mechanical Engineer see page 128.

The record of its graduates shows that the course is equipping such for immediate usefulness in the technical field.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the drafting rooms, shops and experimental laboratory.

The program of the Department is arranged to embody the two-fold belief that a thorough training is best secured by a study of the practical application of the principles involved, as well as of the principles.

EQUIPMENT. The Mechanical Engineering Laboratories are situated in the engineering building, which contains the wood-working and machine shop, drafting and lecture rooms, foundry and blacksmith shops as well as the College power plant.

The wood-working shop contains accommodations for bench work and wood turning. The power machinery in this shop is a band and universal circular saw, five 12-inch turning lathes, one 16-inch by 10-foot pattern maker's lathe, a grindstone, wood trimmer, 26-inch wood planer and universal tool grinder.

In the forge shops are sixteen power forges, two hand forges and a pressure fan and exhauster for keeping the shop free of smoke. There is a full assortment of smith's tools for each forge.

The foundry is equipped with an iron cupola, which melts 1,200 pounds of iron per hour, a brass furnace, one core-oven and the necessary flasks and tools.

The machine shop equipment consists of one 10-inch speed lathe, one 22-inch engine-lathe with compound rest, one 12-inch combined foot and power lathe, two 14-inch engine-lathes, one 24-inch drill press, one No. 4 emery tool grinder, one No. 1½ universal milling machine, and an assortment of vises, taps, dies, pipe-tools and measuring instruments.

The machinery of the pattern and machine shops is driven by a 9 by 14-inch automatic cut off, high speed engine, built by members of the Junior and Senior Mechanical Engineering Classes, after the standard design of the Atlas engine. An 8 by 12-inch engine drives the machinery of the blacksmith shop and foundry. It was presented to the College by the City of Baltimore, and secured through the efforts of Rear-Admiral John D. Ford, United States Navy, retired.

The experimental laboratory contains: A hundred thousand pound Riehle combined hand and power testing machine for making tensile, compression, shearing and transverse tests on various kinds of materials, turbo generator set, consisting of a Curtis steam turbine and thirty-five K. W. General Electric compound wound generator for making steam and electric efficiency tests. This set is connected with the general lighting system of the College so that any time it may be tested to its capacity. It may also be used for lighting purposes if necessary. A cross compound condensing Corliss engine of fifty horse-power, equipped with brake, indicators, relief valves, reducing motion, steam and vacuum gauges, and speed indicator, gives ample opportunity for steam consumption and brake tests. This is connected with the shops, so that any time it may be switched on and drive them. The College power plant with its vacuum heating system, three one-hundred horse-power return tubular boilers, and two electric generating units offer unexcelled opportunities for experimental work.

The three drafting rooms are well equipped for practical work. Two of these are used by the Junior and Senior Classes, each student being provided with a separate desk. The third room is used jointly by the Freshman and Sophomore students and contains eleven drawing tables, accommodating about sixty students.

The combined blue print and dark room with its commodious

printing frames affords splendid opportunities for sun printing, which is so useful to engineering students.

Tours of Inspection. The proximity of the College to Baltimore, Washington and Philadelphia, with their great industrial enterprises, offers unexcelled opportunities to engineering students to acquaint themselves practically with what is being done in modern engineering construction.

During the past session, the Senior Mechanical Engineering Class has visited the Disston Saw Works, Philadelphia; Baldwin Locomotive Works, Philadelphia; University of Pennsylvania, Philadelphia; Midvale Steel Plant, Nicetown, Pa.; and the New York Ship Building Co., Camden, N. J.; anl the Junior Mechanical Engineering Class has visited the United States Navy Yard, Washington; Potomac Electric Light Company, Washington; and the Terminal Power Station, Washington. Upon these trips, an instructor accompanies the class and explains the different processes, plants and machines.

COURSES OFFERED.

380. Freehand Drawing. Straight and curved lines, leaves, plants and ornaments. Lettering, drawing from geometrical solids and antique fragments in outline. and light and shade.

Preparatory Year—First and Second Term, 4 practical periods per week.

381. Shopwork. Exercise in sloyd, chip carving and bent iron work.

Preparatory Year—Third Term, 4 practical periods per week.

382. Shopwork. Sheet metal working in brass and iron.

Sub-Freshman Year—First Term, 4 practical periods per week.

383. Freehand Drawing. Technical sketching. Pen and ink shading.

Freshman Year—First Term, 4 practical periods per week.

384. Mechanical Drawing. Practice in plain lettering, use of instruments, projection and simple working drawings, the plates

upon completion being enclosed in covers properly titled by the students.

Text-book: Rouillion's "Mechanical Drawing."

Freshman Year—First Term, 2 practical periods per week; Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

First Year—Second Term, 4 practical periods per week.

385. Technical Instruction. Explanation of the reading of mechanical drawings; the proper cutting angles, care and adjustment of carpenter tools; relative strength of wood joints; wood, its shrinking and warping, and how to correct and prevent. Drill in problems in arithmetic, algebra and drawing by notes and lectures.

Text-book: Goss' "Bench Work in Wood."

Freshman Year—First Term, 2 theoretical periods per week.

386. Wood Work. During the First Term is taught the use and care of bench tools, exercise in sawing, mortising, tenoning and laying out work from blue prints. The Second Term is devoted to projects involving construction, decoration and wood turning During the Third Term the principles and process of pattern making are taught, together with enough foundry work to demonstrate the uses of pattern making.

Freshman Year—First Term, 6 practical periods per week; Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

First Year—Second Term, 4 practical periods per week.

387. Descriptive Geometry. Detailing of machinery and drawing to scale from blue prints. Tracing and blue printing, and representation of flat and round surfaces by ink shading. Its relation to mechanical drawing and the solution of such problems relating to magnitudes in spaces as bear directly upon those which present themselves to civil, electrical and mechanical engineers.

Text-books: Faunce's "Descriptive Geometry," Rouillion's "Mechanical Drawing."

Sophomore Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 6 practical periods

per week; Third Term, 2 theoretical and 2 practical periods per week.

388. BLACKSMITHING. The making of the fire and how to keep it in order. The operations of drawing-out, upsetting and bending of iron and steel, including the calculations of stock for bent shapes. Welding. Construction of steel tools for use in the machine shop, including tool dressing and tempering. Annealing.

Sophomore Year—First and Second Term, 4 practical periods per week.

389. FOUNDRY WORK. Moulding in iron and brass. Core making. The cupola and its management. Lectures on the selection of irons by fracture, fuels, melting and mixing of metals.

Sophomore Year—Third Term, 8 practical periods per week.

390. ELEMENTARY MACHINE DESIGN. Freehand sketching of the details of machinery and making working drawings of same. Calculations and drawings of a simple type punching press. Notes and lectures.

Junior Year—First and Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

391. MACHINE WORK. Elementary principles of vise and machine work, which includes turning, planing, drilling, screw cutting and filing. This is preceded by study of the different machines used in the machine shops.

Junior Year—First and Second Term, 6 practical periods per week; Third Term, 8 practical periods per week.

392. STEAM ENGINES, BOILERS AND DYNAMOS. The principles of steam and the steam engine. The slide valve and valve diagrams. The indicator and its diagram. Steam boilers, the various types and their advantages. Each student taking this course is required to spend certain hours in the power plant actually operating the engines, boilers and dynamos. The theory of dynamos is given in course 121.

Text-book: Jamieson's "Steam and Steam Engines."
Junior Year—First Term, 3 theoretical periods per week.

393. Graphic Statics. The theory and practice of the method of determining stresses in cranes, roof trusses and bridges, and stress on beams and girders due to traveling loads.
Text-book: Merriman and Jacoby's "Graphic Statics."
Junior Year—Second Term, 4 theoretical periods per week.

394. Structural Design. Analysis of stresses in structural steel buildings, traveling cranes and derricks. Design of crane girders, lattice girders and roof trusses. In addition mechanical engineering students have design of cranes and civil engineering students have design of truss bridges and retaining walls. Both analytical and graphical methods are used, that being used which is best suited to problem.
Text-books: "Cambria Steel," Ketchum's "Steel Mill Buildings," Merriman's "Bridge Design," Thompson's "Bridge and Structural Design."
Senior Year—First and Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 6 practical periods per week.

395. Mechanics of Engineering. The mechanics of solids. Statics of a material point and of rigid bodies. Chains and cords. Centrifugal and centripetal forces. Work. Power. Energy. Friction. Original problems. Theoretical hydraulics.
Text-book: Church's "Mechanics of Engineering."
Senior Year—First Term, 3 theoretical periods per week; Second and Third Term, 4 theoretical periods per week.

396. Thermodynamics. Theory of heat, gases and vapors. Heat engines. Air and refrigeration machinery. Principles of steam boilers, chimneys, steam piping and distribution of the same. The steam turbine.
Text-book: Peabody's "Thermodynamics."
Senior Year—First Term, 2 theoretical periods per week; Second and Third Term, 3 theoretical periods per week.

397. HEATING AND VENTILATION. Principles and comparison of the different systems in common use. Elementary design of some one system. Notes and lectures.

Senior Year—First Term, 2 theoretical and 2 practical periods per week.

398. HYDROMECHANICS. Pumps and pumping machinery. Water supply engineering. Practical consideration of friction of water in pipes. Cost data of machinery. Notes and lectures.

Senior Year—Second Term, 3 theoretical periods per week.

399. EXPERIMENTAL ENGINEERING. Determining the amount of moisture in steam; the efficiency of the injector; the transit and its uses; indicator practice and the use of the planimeter; slide valve setting; the slide rule and micrometer; the analysis of boiler feed water; flue gases; lubricating oils; and the determination of the heating value of coals. The efficiency test of a Curtis steam turbine combined with that of an electric generator. The brake test and steam consumption of a cross compound Condensing Corliss engine under varying loading. The testing of iron, steel and wood to determine their commercial values. The testing of cement to determine its tensile and compressive strength. All such tests must be written upon standard forms provided for each student.

Senior Year—First and Second Term, 8 practical periods per week; Third Term, 4 practical periods per week.

400. THESIS. The time devoted to the problem selected as the subject for a thesis depends upon the difficulties involved in its solution. The time here stated is a minimum.

Senior Year—Second Term, 4 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

MILITARY SCIENCE.

MAJOR DAPRAY.

The Congress of the United States, subject to certain conditions, now appropriates annually a generous sum for each Agricultural College of the United States.

One of the conditions imposed by this grant is that the students shall receive a course of training in Military Tactics.

The instructor for this course is supplied by the War Department and is an officer of the Regular Army, detailed from his Regiment or Corps for this duty.

The value of such military training may be considered from two viewpoints: First, that of the United States Government; and, second, that of the individual student.

To consider the first: The Government, depending as it does upon the citizen soldier for its Volunteer Army in times of national peril, realizes that an army, recruited from raw material as regards both officers and men, would be a most hopeless proposition in these days of quick action. If the officers were trained men they would be of inestimable value in shaping these collections of citizens into efficient armies.

Government aided schools are therefore required to give such a course in Military Tactics as will create in this country a body of men, whose knowledge of the Military Art is sufficient to enable them to officer companies of infantry when called upon by the Government in the defense of the country.

From the viewpoint of the student, the military training makes for character—"it systematically develops the body and it educates the mind along a consistent line for the double purpose of clear thinking and effective practical work."

"It exercises the character, it disciplines the mind, it inculcates habits of subordination to lawful authority, of strict personal accountability for word and act, of truth telling, of integrity and fidelity to trust, of simplicity of life and of courage."

In addition, a cadet has during his term as such, most excellent opportunities to perfect himself in the great art of commanding others.

This problem is for every cadet to solve some time during his cadet career. He finds that he must know his men, and that he must know how to appeal to those under him, if he wishes to get results without antagonizing them.

How often capable men fail, simply because they have not the knack of exercising authority so as to obtain the most satisfactory results.

Often do graduates, even those to whom the military training was distasteful, express their appreciation of the value that this training which they received at College, is to them in their several walks of life.

INSPECTION.

The War Department designates an officer of the Regular Army to make an annual inspection of the Military Department of each of the institutions of learning in the United States at which an officer is regularly detailed. There are about one hundred such institutions. This inspector rates these schools according to their military efficiency. The ten highest are designated as "Distinguished Institutions," and each of such institutions has the privilege of naming one of its graduating class for a second lieutenant's commission in the Regular Army of the United States.

The graduate so fortunate as to be selected for this honor is required to pass only a physical examination before being commissioned.

At two annual inspections the Maryland Agricultural College was designated a "Distinguished Institution" and therefore had the privilege of naming a graduate both of the Class of 1910 and 1911, who received commissions as second lieutenants of infantry on September 24, 1910, and September 29, 1911, respectively.

Only one other Agricultural College in the United States enjoys this distinction, and these two are the first, and thus far the only Agricultural Colleges which have ever attained to this distinguished class.

ORGANIZATION.

The Corps of Cadets is organized as a battalion of three companies, staff and band, the drill and administration of which conform as far as possible to that of the Regular Army.

All students, other than those physically disabled, and those at least twenty-one years of age who are not living in the dormitories, are required to drill, and upon entering are enrolled in one of the companies of the battalion.

INSTRUCTION.

The instruction in the Military Department is both practical and theoretical. The practical instruction includes the School of the Soldier, Squad, Company and Battalion in Close and Extended Order, Ceremonies of Guard-Mounting, Review and Inspection, Dress Parade, Escort to the Color, Advance and Rear Guard work, Patrolling and Scouting, Marches, Target Practice, Visual Signalling, Military Engineering and Topography.

The theoretical instruction is given to all members of the Senior Class and consists of instruction in Infantry Drill Regulations, Manual of Guard Duty, Firing Regulations for Small Arms, Field Service Regulations, First Aid to the Injured, etc., supplemented by lectures on tactical subjects, Army Regulations, Company Books and Papers, Messing, Cooking, Tactics, Camp Sanitation and Military Law.

EQUIPMENT.

The battalion of cadets is equipped with the United States magazine rifle, caliber 30, known as the Krag-Jorgensen, with complete equipment of side arms, cartridge box, etc. The cadet officers and non-commissioned staff officers are equipped with the regulation West Point cadet sword and sash.

The Government also has supplied the battalion with the new regulation sub-calibre target rifle for gallery practice, and has been very liberal in the allowance of ammunition for gallery practice, of blank cartridges for field exercises, and of ball cartridges for outdoor range practice.

Students are held strictly accountable for all arms and equipment issued to them.

PROMOTIONS.

The officers and non-commissioned officers of the corps are selected with reference primarily to their fitness for the duties they will be required to perform. Their general deportment and profi-

ciency in academic work are also given weight in making such selection.

Commissioned officers are selected from the Senior Class, sergeants from the Junior Class, and corporals from the Sophomore Class.

Cadet officers are required to serve from the beginning of the scholastic year up to March 1, of that year. On this date readjustment of rank is made, based upon the following: Military Efficiency, as evidenced by the fall drills and winter recitations in the Tactical Department; Military Discipline and Soldierly Bearing; General Deportment.

Recommendation for promotion will be based upon the standing of a cadet at the end of the year, and the possibility of his being able to work off conditions during the summer will not be considered.

DISCIPLINE.

The discipline of the institution is under the charge of the Commandant of Cadets at all times.

All rules and orders relating to the organization and government of the Corps of Cadets, the appointments, promotions, and changes of officers and all other orders affecting the Military Department are made and promulgated by the Commandant of Cadets, after having been approved by the President.

Trivial breaches of regulations, absences from classes and formations are punished by awarding demerits, confinement to quarters, walking extra punishment tours, etc.

For aggravated offences the punishment may be arrests, withdrawal of privileges, suspension or expulsion, at the discretion of the Faculty and the President.

Demerits will be awarded for every unremoved report, the number depending upon the nature and degree of the offence.

Any cadet who shall receive less than 5 demerits for any one month is excused from serving ordinary confinements for the succeeding month, except in special cases.

Any cadet who shall accumulate more than an average of one demerit per day for any calendar month, shall be deprived of all

privileges to leave the College grounds for the following period of 30 days.

Any cadet who shall accumulate more than an average of one demerit per day for any term, shall be suspended for the following term.

Any cadet, who, having been once suspended, returns and again, in any one term, accumulates more than an average of one demerit per day, shall be dismissed.

Smoking by any cadet of the Sub-Freshman or Preparatory Classes is strictly prohibited.

Any cadet who shall drink any spirituous or intoxicating liquor, or cause the same to be brought within cadet limits, or have the same in his possession, is subject to immediate expulsion from the College.

Every applicant for admission, before he is allowed to matriculate, is required to give a special pledge to refrain from what is popularly known as "hazing." Parents should impress upon their sons that failure to live up to this pledge is a dishonor which unfits them to be students of this College. "Hazing" is punished by instant dismissal.

UNIFORM.

The uniform worn by all members of the battalion of cadets is the regulation West Point fatigue uniform, and is made of the best Charlottesville gray cloth. The uniform consists of the gray fatigue blouse, trousers and cap, with white cross belt and white waist belt for all military formations. By special contract with one of the largest Military Equipment houses in the United States, the uniform and equipment is furnished at a very low price. The cost of this uniform and equipment last year was:

Fatigue coat	$ 7.95
Fatigue trousers	5.45
Fatigue cap	1.60
White waist belt with plate	.50
White cross belt and equipment	.50
Total	$16.00

Measures for this uniform are taken as soon as the student arrives at College, and fit is guaranteed.

Deposits for this uniform must be made with the Treasurer when the measure is taken, as no uniform will be ordered until the money has been deposited for the same. No uniform is paid for until it is approved by the Commandant of Cadets.

In summer, the field service uniform is worn, consisting of olive drab shirt and trousers, canvas leggins, regulation campaign hat, black waist belt and black tie.

The price of the summer outfit is as follows:

2 olive drab, wool shirts at $1.50	$ 3.00
1 campaign hat	.95
1 pair canvas leggins	.85
1 black leather belt	.20
1 black four-in-hand tie	.20
2 pairs white duck trousers at $1.25	2.50
1 pair olive drab trousers	2.30
Total for summer uniform	$10.00

Deposits for the summer uniforms must be made immediately after the first of January.

Members of the battalion must wear the prescribed uniform at all times, except when on leave of absence, and at such times as other dress is permitted.

The gray military overcoat has been adopted by the College as the regulation overcoat. It is made of the same material as the uniform and is a very warm and durable garment which will last for years. The cost of this overcoat is $19.75. The purchase of the overcoat is optional, but it is advised that it be purchased, since no overcoat other than the gray may be worn with the gray uniform.

The full dress coat worn by a majority of the cadets of the battalion for all social functions, etc., is of the regulation West Point pattern. The dresscoat is optional. The cost is $10.00.

White gloves, collars, caps and other military accessories may be purchased at the stores near the College.

CADET BAND.

The cadet band is one of the most attractive features of the Military Department. It is the means of a great deal of pleasure to the cadets, as well as an absolute necessity in furthering the interest of the military exercises.

The band has twenty-four members and is under the direction of an experienced and competent bandmaster employed by the College.

Students having musical ability, or those who wish to learn to play some instrument, will be taken into the band and receive instruction free of charge.

Instruments and music are furnished by the College. Members of the band are excused from certain military duties, but in other respects are subject to the usual military regulations.

Band rehearsals are held each day at the regular drill period, and absence from rehearsal without excuse, is equivalent to to absence from any class.

The band furnishes music for all military ceremonies, such as Guard-Mounting, Dress Parade, Review and Inspection, and Butt's Drill; and for baseball and football games. It has filled a number of engagements in different parts of the State for Farmers' Institutes, picnics, etc. During the spring and summer months it gives a series of open air concerts for the entertainment of the students and visitors.

ROUTINE OF DUTY.

6.30 A. M.	Reveille
6.30 to 6.40 A. M.	Physical Drill
7.00 A. M.	Breakfast
7.35 A. M.	Inspection of Quarters
7.55 A. M.	Chapel
8.15 to 11.15 A. M.	Recitations
11.15 A. M. to 12.15 P. M.	Drill
12.20 P. M.	Dinner
1.00 to 4.00 P. M.	Recitations
5.40 P. M.	Recall from Athletics
6.00 P. M.	Supper
7.30 P. M.	Call to Quarters
7.30 to 10.15 P. M.	Study Hours
10.15 P. M.	Tattoo
11.00 P. M.	Taps

SPECIAL DAILY CALLS.

4.05 P. M. .....Sick Call
4.15 P. M. .....Guard Mounting
Saturday and Sunday calls are one hour later.

ORATORY.

PROFESSOR RICHARDSON.

The object of this Department is to give a thorough training in public speaking. The work is begun with easy lessons in elocution, and this is continued until the student has acquired a mastery of vocal expression, and a pleasing and forcible delivery. The student is then required to deliver both extempore and prepared speeches, covering a wide range of subjects, in this way not only securing practice in delivery, but also developing the power of logical thought.

COURSES OFFERED.

420. ELOCUTION. Such instruction and practice as will enable the students to read correctly and intelligently.
Preparatory Year—2 practical periods per week.

421. ELOCUTION. Review of work in the Preparatory Year and declamations of simple selections.
Sub-Freshman Year—2 practical periods per week.

422. ORATORY. Articulation, accent, modulation, inflection, force and elocutionary pause; expressive management of the body, attitude and motion. Selections of poetry and prose read and declaimed by the students. Simple lectures on orators and oratory. Methods of analysis and subjects for orations. Original orations by students, both extempore and prepared, on simple abstract subjects, and speeches before the class on the less complex public questions. Subjects for orations requiring research in different departments of knowledge. Lectures on parliamentary law.

Freshman Year—1 theoretical period per week.

423. ORATORY. A review of all the work of the Freshman Year. More advanced selections for declamations (Shakespeare, Macaulay, Webster, etc.). Lectures on ancient and modern orators, with readings and declamations from their orations. Extempore speeches by students on various subjects. Prepared original orations by students on subjects requiring careful and intelligent research, including such important public issues of the day as Tariff, Currency, Trades Unions, Trusts, Federal Control of Public Utilities, etc. Lectures on parliamentary law.

Sophomore Year—1 theoretical period per week.

424. ORATORY. Special attention is given to the writing and delivering of orations, debates, etc. Elective.

Junior Year—4 theoretical periods per week.

PHYSICAL CULTURE.

DIRECTOR RICHARDSON.
MR. BYRD.

The physical culture of the students is provided for by a regular course of instruction in the Gymnasium. The course is carefully planned, so as to develop gradually and scientifically the physical powers of each student. One of the most valuable features of this Department is a complete anthropometry outfit, by means of which measurements and strength tests of students are taken at the beginning and also at the end of each scholastic year. By means of these measurements and tests the exact physical condition of each individual student can be ascertained, and such special exercises given as will produce a symmetrical development of the body. While desiring to make the work in the Gymnasium of practical value to all the students, the required work only extends through the Preparatory and Sub-Freshman Years.

*440. GYMNASIUM WORK. Scientific body building, with light gymnastics.

Preparatory Year—3 practical periods per week.

441. HYGIENE. The care of the person in its relation to physical well-being.

Sub-Freshman Year—Second Term, 2 practical periods per week.

*442, GYMNASIUM WORK. Scientific body building, with heavier gymnastic work.

Sub-Freshman Year—2 practical periods per week.

SUB-COLLEGIATE INSTRUCTION.

PROFESSOR HARRISON.
PROFESSOR RICHARDSON.

This Department was established in 1892, and reorganized in 1913; and is designed to meet the requirements of those students who have not had the advantage of a thorough grammar and high school training, with a view to equipping them to enter the regular collegiate department.

Only such students are desired as will be able to enter the Freshman Class within two years, and who are fifteen years of age. This course is recommended especially to students who have not been to school for several years; for their progress in the regular collegiate course, by virtue of such a drawback, would be seriously impeded. It is to be remarked that as a rule the students who have taken this course make excellent progress in their later college work. Students in this Department are subject to the same military regulations as other students.

For outline of courses see page 117.

*This work, temporarily discontinued on account of unusual conditions, will be resumed as soon as conditions permit.

VETERINARY SCIENCE.

PROFESSOR BUCKLEY.

This Department offers instruction in the elements of veterinary science. The course embraces the study of the external form as well as the internal structure and functions of the domesticated animals. It is intended to supplement animal husbandry instruction, and does not have for its object the training of students for veterinary practice. The preservation of health in animals is more aimed at than their restoration from disease. When studiously pursued the courses offered are of great value to the breeder, feeder or manager of live stock.

COURSES OFFERED.

The accompanying brief descriptions indicate the scope of the different courses.

460. SANITATION. Public discussion has emphasized a necessity for better practices in the production and care of animal products used for human food. The study of sanitation, therefore, is of considerable importance to students who may elect courses of study bearing upon animal production and dairying. Inasmuch as sanitary laws are applicable to the individual and the home, as well as to animals and their stables, it is desirable that all students receive some instruction in this subject. It is given, therefore, early in the course before specialization of subjects is made.

Sub-Freshman Year—Second Term, 2 practical periods per week.

461. FARM BUILDINGS. This course has for its object the development of proper ideas in the construction and arrangement of buildings for the housing of stock; the storage of food materials, animal and dairy products; and incidentally the storage of harness and implements. Convenience, economy and proper sanitation are especially considered in the study of plans and location. The course is made as practical as possible by the study of plans, specifications and photographs of existing structures, and by drawing simple plans to express individual ideas.

Sophomore and First Year—Second Term, 2 theoretical and 4 practical periods per week.

462. ANATOMY AND PHYSIOLOGY. This course embraces a general consideration of the structure and functions of the animal body, with especial reference to animal production and dairying.

Junior Year—Second Term, 3 theoretical periods per week.

463. BACTERIOLOGY. The study of bacteria, including their microscopic examination, cultivation and sterilization, is made. The intimate relation which this subject bears to fertilization, dairying and plant and animal diseases makes it important in the list of agricultural subjects.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

464. BACTERIOLOGY. This course completes course 343 begun in the Junior Year.

Senior Year—Second Term, 8 practical periods per week.

465. BACTERIOLOGY. A brief course in dairy bacteriology is offered the students attending the two-year Courses in Agriculture and Horticulture.

Second Year—Second Term, 2 practical periods per week.

466. ANIMAL DISEASES. A study is made of the diseases of the domesticated animals with emphasis upon sanitation, practical bacteriology, nursing, administration of medicine and use of common medicinal substances. The aim of this course is to enable the student to perceive the early appearance of diseases and intelligently care for them under proper veterinary supervision.

Senior Year—Second Term, 5 theoretical and 6 practical periods per week.

467. ANIMAL DISEASES. A briefer course in animal diseases is offered to the students in the two-year Agricultural and Horticultural Courses.

Second Year—Second Term, 2 theoretical and 4 practical periods per week.

THE COLLEGE LIBRARY.

DR. SILVESTER.

The College Library may be properly regarded as one of the departments of the institution, as its aid for purposes of reference and its influence upon the mental development of the students must always be felt throughout all courses. The present quarters of the Library, while adequate for its immediate needs, will necessarily be too limited in the course of time. The reading room is well arranged and lighted, and is in all respects comfortable and convenient.

While the Library is not large, the collection of works has been carefully chosen, and the shelves contain a fair supply of works of reference, history, biography, essays, poetry and the standard works of fiction. Several thousand volumes of bound United States Government Reports comprise an important addition to the reference works of the Library. Most of the leading magazines and a number of newspapers are subscribed for; technical periodicals and works of reference relating to specific branches are deposited in the libraries of the various departments.

The works in the Library are classified according to the modern Dewey Decimal System of classification. As rapidly as possible the sets of Government Reports that are most valuable are being completed and catalogued. At present there are on hand completed to date, or nearing completion, sets of the reports and bulletins of the United States Agricultural Department, the Geological Survey, the Fish Commission, the Smithsonian Institution, the National Museum, the Bureau of Ethnology, the Bureau of Education, the Labor Bureau, the Census Bureau and the Bureau of American Republics. There are also nearly completed sets of the Consular Reports, Special Consular Reports, the Engineers' Reports of the United States Army, the War of the Rebellion Records and Messages and Documents, besides many other miscellaneous publications of great value. Many valuable State publications are also on file.

It is the aim of the Librarian to render all these valuable works available for easy reference by the students.

Grateful acknowledgment is made to the officers of all the departments and bureaus above noted for their publications, and especially to the United States Superintendent of Documents, through whose aid many public documents have been received. Thanks are likewise due the following for valuable additions to the Library: Johns Hopkins University, the Geological Survey, the Weather Service, the Highway Commission, and the Bureau of Statistics and Information. Especial thanks are due the county press for their liberality in sending their publications free to the Library.

COURSES OF STUDY.

In order to systematize the work of the different departments of the College, and as far as possible arrange for specialization within limits consistent with the normal development of individual students, eight distinct courses of study have been prepared, one of which the student is expected to choose upon entering the regular College work.

These courses are Agriculture, (subdivided into Agronomy and Animal Husbandry), Horticulture, Biology, Chemistry, General, Civil Engineering, Electrical Engineering and Mechanical Engineering.

A continuous and progressive course of work, beginning in the Freshman Year, with a nearly uniform course for all students, and gradually separating in the three succeeding years until the class work is almost wholly specialized, has been found to be most satisfactory. A broad and liberal foundation in English, Mathematics and History is laid in the Freshman and Sophomore Years, and then the particular line of study desired is emphasized more and more until the end of the course.

In the tabular statement of the courses the periods per week are given, the numbers in parenthesis denoting practical or laboratory periods, the others theoretical or recitation periods.

AGRICULTURAL COURSES.

FOUR-YEAR COURSE IN AGRICULTURE.

The four-year Agricultural Course is designed to fit the student for conducting practical operations on the farm, or, should taste or circumstances so direct, to prosecute successfully advanced scientific research along the lines of agronomy or animal husbandry. With this end in view, the course has been made at once comprehensive and technical, comprehensive enough to include whatever is necessary for the complete development of the work, yet technical enough to make the student feel that he is a specialist and equipped for special work.

This Course is the result of development. While a man must specialize to attain any eminent success, yet in agricultural science it is not possible to specialize to the same degree as in some others, because it is itself made up of many sciences. Experience has clearly shown also that in agriculture the practical must keep even pace with the theoretical, and that true education trains the eye and hand as well as the intellect, and should give to the student the ability not only to acquire and originate ideas, but also to express them in words and deeds.

In the Junior Year the Course is divided into two sections, known as the Division of Agronomy and the Division of Animal Husbandry. This arrangement enables the student to specialize along whichever line accords with his interests or desires, while at the same time he is taught the fundamental facts of both. This enables him to see more clearly, and to harmonize his work to, the relations which must exist between these great branches of agriculture.

TWO-YEAR COURSE IN AGRICULTURE.

A large number of young men seeking to better themselves in their chosen profession of farming are calling for instruction in those courses pertaining to practical agriculture. Many of them have neither the time nor means at hand to take the full four-year Course, but while away in school they wish to gain the greatest possible amount of instruction and assistance which is particularly applicable to the farm. The farm can no longer be run in the old-time haphazard way. There is a demand for skill and the highest order of intelligence to make a success on the farm, as in any other line of human endeavor. Brains must be planted with each little seed, and also put into the feeding trough for the animal. To meet the demand for instruction along these lines, and for a better understanding of the underlying principles of successful agriculture, a short course of two years has been provided.

It embraces much of the technical work of the four-year Course, and is especially designed to lay a foundation that will secure success in practical farming, which, as it must be conducted today, is a union of many interests. To enter this Course a working knowl-

edge of arithmetic, including fractions, mensuration and percentage, and a common-school training in English, is required.

Agricultural Course.

Division of Agronomy.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)		
Trigonometry 366		5	
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2			1(4)
Geology 13	4(2)		
Breeds and Scoring 21	1(2)		
Elementary Pomology 241			1(2)
Vegetable Culture 260		(2)	
Landscape Gardening 280	(2)		
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 383	(4)		
Mechanical Drawing 384		(4)	
Woodwork 386	(4)		
Junior Year.			
English Literature 167	3	3	
Logic 168			3
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 322	3	3	3
Plant Production 5	3(4)		
Farm Machinery 7			2(4)
Farm Management 8	2		
Dairying 24			3
Anatomy & Physiology 462		3	
Bacteriology 463		2(4)	
Economic Plants 69		2(4)	
Vegetable Pathology 73			2(4)
Qualitative Analysis 83	1(8)		
Quantitative Analysis 87		1(6)	1(4)
Organic Chemistry 88	3		
Research 12			(2)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 321	3	3	3
Soils 3	2(4)	2(4)	
Farm Crops 2 / Farm Drainage 4			2(4)
Fertilizers 6			2(4)
Live Stock Management 23	2(4)		
Farm Buildings 461		2(4)	
Plant Histology 65	1(6)		
Plant Physiology 66		2(4)	
Entomology 223			2(4)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
Psychology 172	4		
Pedagogics 173		4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Farm Management 8			2(4)
Crop Production 9 or Soils 10	3(4)		3(4)
Farm Forestry 40	2(4)		
Bacteriology 464		(8)	
Animal Diseases 466		5(6)	
Plant Breeding 255		2	2(2)
Quantitative Analysis 87	(4)		
Agricultural Chemistry 92	4		
Research & Thesis 12	(2)	(4)	2(4)

Upon completion of this Course a certificate is granted, taking the place of the diploma for the four-year Course. See outline of Course on page 118.

Experience having demonstrated the advantages to be derived from a change of plan, the old agricultural short winter course has been reorganized into a series of short courses, each lasting from

Agricultural Course.

Division of Animal Husbandry.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Trigonometry 366	.....	5	.....
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2	.....	.....	1(4)
Geology 13	4(2)	.....	.....
Breeds and Scoring 21	1(2)	.....	.....
Elementary Pomology 241	.....	.....	1(2)
Vegetable Culture 260	.....	(2)	.....
Landscape Gardening 280	(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 221	.....	3(4)	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	.....	(4)	.....
Woodwork 386	(4)	.....	.....
Junior Year.			
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
German 322	3	3	3
Farm Machinery 7	.....	.....	2(4)
Breeds and Scoring 21	1(6)	.....	.....
Principles of Breeding 22	3	.....	.....
Dairying 24	.....	.....	3(4)
Animal Nutrition 26	.....	4(2)	2(2)
Anatomy and Physiology 462	.....	3	.....
Bacteriology 463	.....	2(4)	.....
Zoology 226	.....	1(4)*	1(4)*
Qualitative Analysis 83	1(8)	.....	.....
Quantitative Analysis 87	.....	1(4)*	1(4)*
Organic Chemistry 88	3	.....	.....

Subject.	Term. I	II	III
Sophomore Year.			
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 327	3	3	3
Soils 3	2(4)	2(4)	.....
Farm Crops 2 / Farm Drainage 4	.....	.....	2(4)
Fertilizers 6	.....	.....	2(4)
Live Stock Management 23	2(4)	.....	.....
Farm Buildings 461	.....	2(4)	.....
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	2(4)	.....
Entomology 223	.....	.....	2(4)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
Psychology 172	4	.....	.....
Pedagogics 173	.....	4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Dairying 24	1(6)*	.....	.....
Stock Judging 25	(4)	.....	(4)
Animal Nutrition 26	2(4)	.....	3(2)
Poultry 28	.....	2	.....
Farm Forestry 40	2(4)	.....	.....
Bacteriology 464	.....	(8)	.....
Animal Diseases 466	.....	5(6)	.....
Animal Parasites 233	.....	.....	2(4)
Quantitative Analysis 87	(4)	.....	.....
Agricultural Chemistry 92	4*	.....	.....
Research & Thesis 29	.....	(4)	4(4)

*Alternative.

one to three weeks and being occupied entirely with one subject. At the same time, the work has been amplified and enlarged by the addition of a short course in Poultry Husbandry and one in Domes-

tic Science. The advantages of this method appear to be several. If the student wishes to take all the courses he can do so without greater outlay of time or money than formerly, when several subjects were taken up concurrently.

If on the other hand, there be any one who feels the need of instruction in a part of the work only, or if for any reason he cannot arrange to spend ten weeks away from home, he may select from the subjects offered the one or ones which specially appeal to him and attend the College only during the time when those subjects are being taught.

The Domestic Science course is intended specially for women and runs concurrently with the Farm Crops course. With this exception, these short courses follow each other in regular order. While the specialist may take one or more, or even a part of one, as he sees fit, the entire work has been laid out in logical sequence and the man interested in general farming and unable to take a course of four or two years, will find great advantages in taking all of these short courses as they come.

The arrangement of the courses for 1914, beginning after the Christmas holidays, will be:

Soils and Fertilizers, one week.
Domestic Science, one week.
Farm Crops, one week.
Poultry Husbandry, one week.
Horticulture, two weeks.
Animal Husbandry, three weeks.
Farm Machinery and Farm Engines, one week.
Farm Carpentry and Blacksmithing, one week.

No charge is made to short course students for tuition or use of laboratories. Good board at moderate rates can be secured in the neighboring villages of Berwyn, College Park, Riverdale and Hyattsville, all within a short distance of the College and Experiment Station.

Electric cars make frequent connection.

Short course students are not required to drill or wear uniforms.

For more detailed information regarding these courses, write for special short course bulletin and folders.

HORTICULTURAL COURSES.

FOUR-YEAR COURSE IN HORTICULTURE.

Through the organization of the School of Horticulture an opportunity is presented for students in the four-year courses to specialize in either Pomology, Vegetable Culture or Landscape Gardening and Floriculture.

These courses are designed to fit the student for conducting practical operations in horticulture on the farm, or to continue scientific research work and teaching in his chosen field. Practical work is made a prominent feature of the course. In the Freshman and Sophomore Years the work is not materially different from that of the Agricultural and Biological Courses, as all students are required to take certain fundamental subjects. In the Junior and Senior Years the courses become specialized.

The College and Experiment Station Farm, orchards, greenhouses, etc., together with the close proximity of the Institution to the United States Department of Agriculture Greenhouses and Experiment Farms, offer unusual opportunities to the students in horticulture.

TWO-YEAR COURSE IN HORTICULTURE.

The two-year course in horticulture is intended for young men who wish to devote their efforts to fruit and vegetable growing, or to commercial nursery or flower business, and who cannot afford the time required for a regular college course.

The course is so arranged that the students will be given the fundamental work in horticulture and agriculture and they can also specialize in their second year to some extent along the line of horticulture in which they are particularly interested. Courses in English, Botany, Entomology and Chemistry are included in their work.

Upon the completion of the two years' work satisfactorily, the students are given a certificate.

Horticultural Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)		
Trigonometry 366		5	
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2			1(4)
Geology 13	4(2)		
Breeds and Scoring 21	1(2)		
Elementary Pomology 241			1(2)
Vegetable Culture 260		(2)	
Landscape Gardening 280	(2)		
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 383	(4)		
Mechanical Drawing 384		(4)	
Woodwork 386	(4)		
Junior Year.			
English Literature 167	3	3	
Logic 168			3
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 322	3	3	3
Farm Machinery 7			2(4)
Bacteriology 463		2(4)	
Commercial Pomology 243	2(2)‖		
Small Fruits 244		1(4)‖	2(4)‖
Small Fruits 245			2(4)‖
Practical Pomology 246		2(4)‖	2(2)‖
Vegetable Culture 262	2(2)‡		
Vegetable Culture 263		2‡	2‡
Vegetable Culture 264		1(8)‡	1(4)‡
Vegetable Culture 265			2‡
Landscape Gardening 282	2(2)§		
Floriculture 283		2(4)§	
Greenhouse Construction 284		2(2)§	
Plant Materials 285			2(4)§
Tree Surgery 286			1(4)§
Plant Morphology 68	2(4)		
Economic Plants 69		2(4)	
Vegetable Pathology 73			2(4)
Economic Entomology 224	2(4)		
Qualitative Analysis 83	1(6)		

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 321	3	3	3
Soils 3	2(4)	2(4)	
Farm Crops 2 / Farm Drainage 4			2(4)
Pomology 242		2(4)	
Vegetable Culture 261			2(4)
Landscape Gardening 281	2(4)		
Plant Histology 65	1(6)		
Plant Physiology 66		2(4)	
Entomology 223			2(4)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
Psychology 172	4		
Pedagogics 173		4	4
English Composition 174	1	1	1
Economics 201	4	4	4
German 322		4	
Farm Forestry 40	2(4)		
Systematic Pomology 247	2(4)‖	2(2)‖	
Small & Vine Fruits 248	2(2)‖		
Horticulture 249		1(2)‖	
Small Fruits 250			2(4)‖
Pomology 251			2(2)‖
Nut Culture 252			2(2)‖
Plant Breeding 255		2‖	2(2)‖
Vegetable Culture 266	3(6)‡		
Vegetable Culture 267		4(4)‡	4(4)‡
Vegetable Culture 268			4(4)‡
Landscape Design 287	2(4)§		
Civic Art 288	2(2)§		
Planting Plans 289		2(6)§	
Floral Decoration 290		(2)§	
Exotics 291			2§
Landscape Gardening 292			2§
Landscape Practice 293			2(8)§
Applied Entomology 232		2(4)	
Agricultural Chemistry 92	4		
Thesis 256	(2)‖	(2)‖	(6)‖
Thesis 269	(4)‡	(4)‡	(8)‡
Thesis 294	(2)§	(4)§	2(8)§

‖For Students specializing in Pomology.

‡For Students specializing in Vegetable Culture.

§For Students specializing in Landscape Gardening and Floriculture.

TWO WEEKS' COURSE IN HORTICULTURE.

A two weeks' short course in horticulture is offered each winter to those who are unable to spend a longer time at the College. The course is designed for practical men who can leave home for short periods during the winter. It consists of lectures on all phases of horticulture and practical demonstrations in spraying, packing, pruning, etc.

BIOLOGICAL COURSE.

The Biological Course, while offering a general education and special training in the natural sciences, is outlined in particular for those who wish to specialize in some branch of botany or zoology. It aims to fit men for practical work in the field of plant pathology and entomology, but will also give training for special work in the pure sciences.

There are many opportunities for scientific workers in connection with the agricultural investigations of the Federal Government and of the state experiment stations, as well as in the state inspection work, for which this Course gives training. In fact, it is now difficult to secure men trained for such work. Full opportunity is given for the student to develop his natural resources and to learn to do work on his own responsibility. A large part of his time is spent in both practical and theoretical biological studies without neglecting the cultural studies which are a necessary foundation for every specialist. Upon completion of the four years' work the degree of Bachelor of Science is conferred.

Biological Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 364	(2)		
Trigonometry 366		5	
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2			1(4)
Geology 13	4(2)		
Breeds and Scoring 21	1(2)		
Elementary Pomology 241			1(2)
Vegetable Culture 260		(2)	
Landscape Gardening 280	(2)		
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 383	(4)		
Mechanical Drawing 384		(4)	
Woodwork 386	(4)		
Junior Year.			
English Literature 167	3	3	
Logic 168			3
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 322	3	3	3
Bacteriology 463		2(4)	
Plant Physiology 67	(6)†		
Plant Morphology 68	2(4)		
Economic Plants 69		2(4)	
Seed Analysis 70		1(6)†	
Micro Botany 71			2(4)†
Vegetable Pathology 73			2(4)
Botany 74			1(6)†
Economic Entomology 224	2(4)		
Entomology 225	1(4)!		
Zoology 226		1(4)	1(4)
Systematic Entomology 227		2(4)!	2(4)!
Entomology 228			1(6)!
Qualitative Analysis 83	1(6)		

Subject.	Term. I	II	III
Sophomore Year.			
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 321	3	3	3
Plant Histology 65	1(6)		
Plant Physiology 66		2(4)	
Zoology 222	2(2)	2(4)	2(2)
Entomology 223			2(4)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
Psychology 172	4		
Pedagogics 173		4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Botany 75	4(6)†	4(6)†	4(6)†
Entomology 234	4(6)!	4(6)!	4(6)†
Botany 75 or Entomology 234	3(6)	3(6)	3(6)
Research & Thesis 76, 235	1(4)	1(4)	1(4)

†For students specializing in Botany.
!For students specializing in Entomology.

CHEMICAL COURSE.

The Course in Chemistry is essentially the same as the other science courses until the last term of the Sophomore Year, though any of the four-year courses would prepare for this, as the amount of chemistry is the same in all courses to the end of the Second Term of the Sophomore Year, and the demands on the agricultural

or technical chemist are now so varied that a foundation with more of the essentials of the agricultural or the engineering courses is often desirable.

Chemical Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)		
Solid Geometry 365	4		
Trigonometry 366		5	
Rhetoric 163	5	5	5
English 164	(2)	(2)	
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2			1(4)
Geology 13	4(2)		
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 383	(4)		
Mechanical Drawing 384		(4)	
Woodwork 386			(4)
Junior Year.			
English Literature 167	3	3	
Logic 168			3
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
German 322	3	3	3
Bacteriology 463		2(4)	
Micro Botany 71			2(4)
Qualitative Analysis 82	1(8)		
Inorganic Preparations 84	(4)		
Theoretical Chemistry 85	2	1	1
Quantitative Analysis 86		1(12)	
Organic Chemistry 88	3	3	3
Mineralogy 89	1(4)		
Volumetric Analysis 91			2(10)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 321	3	3	3
Plant Histology 65	1(6)		
Plant Physiology 66		2(4)	
Zoology 222	2(2)	2(4)	2(2)
Chemistry 81	4(2)	3(4)	3(4)
Qualitative Analysis 82			2(4)
Senior Year.			
Psychology 172	4		
Pedagogics 173		4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Organic Preparations 90		(16)	
Agricultural Chemistry 92	4		
Agricultural Analysis 93	(24)		
Chemistry 94		6(4)	5(2)
Research & Thesis 95			(20)

Beginning with the Junior Year the major part of the student's time is devoted to chemistry, the practical work in the laboratory occupying approximately half of his time. The Course is essentially a course in agricultural chemistry, fitting the graduate for positions in agricultural colleges, experiment stations and the United States Department of Agriculture.

GENERAL COURSE.

The General Course is offered to those young men who have not chosen as their vocation in life any of the technical professions, but who are seeking for such general culture as will fit them to become

General Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)		
Solid Geometry 365	4		
Trigonometry 366		5	
Algebra 367			3
Rhetoric 163	5	5	5
English 164	(2)	(2)	
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Geology 13	4(2)		
Botany 63			2(4)
Zoology 221		3(4)	
Elementary Surveying 101			2(4)
Freehand Drawing 383	(4)		
Mechanical Drawing 384		(4)	
Woodwork 386			(4)
Junior Year.			
English Literature 167	3	3	
Logic 168			3
English 169	4*	4*	4*
English Composition 170	1	1	1
History 184	4*	4*	4*
Oratory 424	4*	4*	4*
Civics 200	3	3	
Business Law 202			3
German 322	3	3	3
French 340, 341	4	4	3
Bacteriology 463		2(4)**	
Small Fruits 244		1(4)***	
Small Fruits 245			2(4)***
Landscape Gardening 282	2(2)**		
Floriculture 283		2(4)**	
Plant Materials 285			2(4)**
Plant Morphology 68	2(4)*		
Micro Botany 71			2(4)**
Economic Entomology 224	2(4)*		
Zoology 226		1(4)**	
Qualitative Analysis 83	1(6)		
Inorganic Preparat'ns 84	(4) *		
Theoretical Chemistry 85	2		
Quantitative Analysis 87		1(6)**	1(6)***
Organic Chemistry 88	3**	3**	
Mineralogy 89	1(4)**		
Volumetric Analysis 91			2(4)***

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
Latin 302	4	4	4
German 321	3	3	3
Zoology 222	2(2)	2(4)	2(2)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
English Classics 171	4	4	4
Psychology 172	4		
Pedagogics 173		4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Economics 203	4*	4*	4*
Civics 204	4*	4*	4*
Latin 303	4*	4*	4*
German 322	4*	4*	4*
French 342	4*	4*	4*
Landscape Design 287	2(4)*		
Planting Plans 289		2(4)*	
Landscape Practice 293			2(4)*
Agricultural Chemistry 92	4*		
Agricultural Analysis 93	(8)*		
Chemistry 94		6(4)*	5(6)*

*,**,***Alternatives. Senior students must elect from the alternative courses a sufficient number to cover 12 periods of work.

after graduation, useful members of society. Young men desiring to study law, or medicine, or the liberal arts, or to become teachers, will find in the curriculum of this Course a highly satisfactory preparation for such work. While emphasis has been placed upon the cultural subjects, such as English, language, literature, history, mathematics, etc., the natural sciences occupy a prominent place in the Course and the range of electives beginning in the Junior Year will enable each to choose for himself, under certain necessary regulations, such a group of studies as will be best adapted to his own peculiar requirements.

CIVIL ENGINEERING COURSE.

This Course offers a young man an opportunity to obtain training in civil engineering which will enable him to engage in practical engineering work in the field or in the drafting room with the assurance that he has the necessary preparation to profit by the experience thus afforded; or which will entitle him to advanced standing, if he desires to pursue a more extended course at a technical school of a higher grade. The curriculum, as outlined, includes not only studies having culture value, but the sciences which form the basis of engineering. Students who have found themselves deficient in ability to learn mathematics are not advised to enter an engineering course. Upon the satisfactory completion of this Course the degree of Bachelor of Science in Civil Engineering, is conferred.

A thesis dealing with some problem in engineering will be required of all applicants for the degree of Bachelor of Science in Civil Engineering.

All engineering students in the Junior and Senior Classes are required to spend a portion of their time in the reading of the current engineering magazines.

Civil Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)		
Solid Geometry 365	4		
Trigonometry 366		5	2
Algebra 367			3
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Geology 13	4(2)		
Elementary Mechanics 100		4	
Elementary Surveying 101			2(4)
Freehand Drawing 383	(4)		
Mechanical Drawing 384	(2)	(4)	(8)
Woodwork 386		(4)	
Junior Year.			
Calculus 369	5		
English Literature 167	3	3	
Logic 168			3
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
Surveying 102	4(4)		
Drawing 103	(8)	(8)	(4)
Railway Engineering 104		3	3
Structural Design 105		2(4)	2(4)
Mechanics of Materials 106		3	5
Practical Problems 111			(8)
Steam Engines 392	3		
Graphic Statics 393		4	

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 368	5	3	
Calculus 369		2	5
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
Oratory 423	1		
German 321	3	3	3
Chemistry 81	4(2)	3(4)	3(4)
Surveying 102	(4)	3	1(4)
Descriptive Geometry 387	1(4)	2(4)	2(2)
Senior Year.			
Pedagogics 173		4*	4*
English Composition 174	1	1	1
Economics 201	4	4	4
German 322		4*	4*
Surveying 101			(4)
Hydraulics 107	3	5	
Highway Engineering 108	4		
Estimates of Cost 109			1(2)
Concrete 110			2
Practical Problems 111	(12)	(4)	(4)
Computing 112		(6)	
Structural Design 394	2(4)	2(4)*	2(4)*
Mechanics of Eng. 395	3	4	4
Thesis 113		(4)	(8)

*Alternative.

ELECTRICAL ENGINEERING COURSE.

This Course was introduced because of the great demand for young men who are not only well trained in the practical construction and operation of electrical machines, but who have a thorough knowledge of the principles and laws controlling the phenomena and forces with which they have to deal.

The general plan of the Course is to make the student thoroughly acquainted with the scientific laws which are the basis of the profession, and at the same time to train him to adapt the laws to practice, to use his own judgment, and to apply honest and accurate methods in all his work.

The curriculum, as outlined, includes those studies which provide a broad general culture, as well as a good foundation for the engineering work which follows. From the beginning of the Second

Electrical Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Solid Geometry 365	4	.....	.....
Trigonometry 366	.....	5	2
Algebra 367	.....	.....	3
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Elementary Mechanics 100	.....	4	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	(2)	(4)	(8)
Technical Instruction 385	2	.....	.....
Woodwork 386	(6)	(4)	.....
Junior Year.			
Calculus 369	5	.....	.....
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
Mechanics of Materials 106	.....	3	5
Dynamos 121	3	4	3
Batteries 126	.....	.....	2
Electrical Laboratory 127	(4)	(4)	(6)
Electrical Design 129	.....	.....	(6)
Machine Design 390	(4)	(4)	.....
Machine Work 391	(6)	(6)	(4)
Steam Engines 392	3	.....	.....
Graphic Statics 393	.....	4	.....

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 368	5	3	.....
Calculus 369	.....	2	5
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
Oratory 423	1	.....	.....
German 321	3	3	3
Chemistry 81	4(2)	3(4)	3(4)
Electricity 120	.....	3	3
Descriptive Geometry 387	1(4)	2(4)	2(2)
Shopwork 388	(4)	.....	.....
Senior Year.			
English Composition 174	1	1	1
Economics 201	4	4	4
Hydraulics 107	3	5	.....
Alternators 122	5	3	5
Electric Lights 123	2	2	.....
Telephones & Telegraphs 124	.....	2	2
Electric Railways 125	.....	.....	3
Alt. Cur. Lab. 128	(8)	(8)	(6)
Alternator Design 130	.....	.....	(6)
Thermo dynamics 396	2	.....	.....
Thesis 131	(8)	(8)	(8)

Term of the Sophomore Year the electrical training extends continuously throughout the Course.

MECHANICAL ENGINEERING COURSE.

The curriculum of the several years of this Course is outlined so as to give general culture as well as a proper foundation for the profession of Mechanical Engineer.

Young men not having a natural taste for mathematics and the handling of tools are advised not to pursue this Course. The prac-

Mechanical Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)		
Solid Geometry 365	4		
Trigonometry 366		5	2
Algebra 367			3
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Elementary Mechanics 100		4	
Freehand Drawing 383	(4)		
Mechanical Drawing 384	(2)	(4)	(8)
Technical Instruction 385	2		
Woodwork 386	(6)	(4)	(8)
Junior Year.			
Calculus 369	5		
English Literature 167	3	3	
Logic 168			3
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
Mechanics of Materials 106		3	5
Dynamos 121	3	4	3
Machine Design 390	2(4)	2(4)	2(8)
Machine Work 391	(6)	(6)	(8)
Steam Engines 392	3		
Graphic Statics 393		4	

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 368	5	3	
Calculus 369		2	5
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
Oratory 423	1		
German 321	3	3	3
Chemistry 81	4(2)	3(4)	3(4)
Descriptive Geometry 387	1(4)	2(6)	2
Shopwork 388	(4)	(4)	
Foundry 389			(8)
Senior Year.			
Psychology 172	4*		
English Composition 174	1	1	1
Economics 201	4	4	4
German 322	4*		
Structural Design 394	2(4)	2(4)	2(6)
Mechanics of Eng. 395	3	4	4
Thermodynamics 396	2	3	3
Heat and Ventilation 397	2(2)		
Hydromechanics 398		3	
Exp. Engineering 399	(8)	(8)	(4)
Thesis 400		(4)	2(8)

*Alternative,

tical work of this Course is most thorough. The student is familiarized from the first with the reading of engineering drawings and with the use of tools and implements used in wood and iron work. He is given daily practice in the shops and is encouraged to develop whatever inventive talent he may have. Results have shown that students completing this Course have no difficulty in securing employment immediately upon graduation in the field of mechanics or mechanical engineering.

SYNOPSIS OF COURSES.

The figures represent the number of periods per week, those in parenthesis indicating practical or laboratory periods; the others, theoretical or recitation periods.

Four-Year Courses.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Freshman Year.									
I									
Mathematics 364	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Solid Geometry 365	.....	.....	.....	.....	4	4	4	4	4
Rhetoric 163	5	5	5	5	5	5	5	5	5
English 164	.....	.....	.....	.....	(2)	(2)	.....	.....	.....
Oratory 422	1	1	1	1	1	1	1	1	1
History 183 or Latin 301	3	3	3	3	3	3	3	3	3
German 320	3	3	3	3	3	3	3	3	3
Geology 13	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	.....	.....
Breeds 21	1(2)	1(2)	1(2)	1(2)	.....	.....	.....	.....	.....
Landscape Gar. 280	(2)	(2)	(2)	(2)	.....	.....	.....	.....	.....
Freehand Drawing 383	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Mech. Drawing 384	.....	.....	.....	.....	.....	.....	(2)	(2)	(2)
Tech. Instruction 386	.....	.....	.....	.....	.....	.....	.....	2	2
Woodwork 386	(4)	(4)	(4)	(4)	.....	.....	.....	(6)	(6)
II									
Trigonometry 366	5	5	5	5	5	5	5	5	5
Rhetoric 163	5	5	5	5	5	5	5	5	5
English 164	.....	.....	.....	.....	(2)	(2)	.....	.....	.....
Oratory 422	1	1	1	1	1	1	1	1	1
History 183 or Latin 301	3	3	3	3	3	3	3	3	3
German 320	3	3	3	3	3	3	3	3	3
Veg. Culture 260	(2)	(2)	(2)	(2)	.....	.....	.....	.....	.....
Zoology 221	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	.....	.....	.....
Elem. Mech. 100	.....	.....	.....	.....	.....	.....	4	4	4
Mech. Drawing 384	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Woodwork 386	.....	.....	.....	.....	.....	.....	(4)	(4)	(4)
III									
Trigonometry 366	.....	.....	.....	.....	.....	.....	2	2	2
Algebra 367	.....	.....	.....	.....	.....	3	3	3	3
Rhetoric 163	5	5	5	5	5	5	5	5	5
Oratory 422	1	1	1	1	1	1	1	1	1
History 183 or Latin 301	3	3	3	3	3	3	3	3	3

Four-Year Courses—Continued.

Term and Subject	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Freshman Year—Continued.									
III—Continued.									
German 320	3	3	3	3	3	3	3	3	3
Farm Crops 2	1(4)	1(4)	1(4)	1(4)	1(4)				
Elem. Pomology 241	1(2)	1(2)	1(2)	1(2)					
Botany 63	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)			
Surveying 101	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	
Mech. Drawing 384							(8)	(8)	(8)
Woodwork 386					(4)	(4)			(8)
Sophomore Year.									
I									
Analytics 368							5	5	5
Physics 141				3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Eng. Comp. 165	1	1	1	1	1	1	1	1	1
Am. Literature 166	3	3	3	3	3	3			
Oratory 423	1	1	1	1	1	1	1	1	1
Latin 302						4			
German 321	3	3	3	3	3	3	3	3	3
Soils 3	2(4)	2(4)	2(4)						
Live Stock Man. 23	2(4)	2(4)							
Landscape Gar. 281			2(4)						
Plant Histology 65	1(6)	1(6)	1(6)	1(6)	1(6)				
Zoology 222				2(2)	2(2)	2(2)			
Chemistry 81	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
Surveying 102							(4)		
Desc. Geometry 387							1(4)	1(4)	1(4)
Shopwork 388								(4)	(4)
II									
Analytics 368							3	3	3
Calculus 369							2	2	2
Physics 141				3(2)	3(2)	3(2)	3(2)	3(2)	3(2)
Eng. Comp. 165	1	1	1	1	1	1	1	1	1
Am. Literature 166	3	3	3	3	3	3			
Oratory 423	1	1	1	1	1	1			
Latin 302						4			
German 321	3	3	3	3	3	3	3	3	3
Soils 3	2(4)	2(4)	2(4)						
Farm Buildings 461	2(4)	2(4)							
Pomology 242			2(4)						
Plant Physiology 66	2(4)	2(4)	2(4)	2(4)	2(4)				
Zoology 222				2(4)	2(4)	2(4)			
Chemistry 81	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Surveying 102							3		
Electricity 120								3	
Desc. Geometry 387							2(4)	2(4)	2(6)
Shopwork 388									(4)

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horti-culture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Sophomore Year—Continued.									
III.									
Calculus 369							5	5	5
Physics 141				3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Eng. Comp. 165	1	1	1	1	1	1	1	1	1
Am. Literature 166	3	3	3	3	3	3			
Oratory 423	1	1	1	1	1	1			
Latin 302						4			
German 321	3	3	3	3	3	3	3	3	3
Farm Crops 2 or Farm Drainage 4	2(4)	2(4)	2(4)						
Fertilizers 6	2(4)	2(4)							
Veg. Culture 261			2(4)						
Zoology 222				2(2)	2(2)	2(2)			
Entomology 223	2(4)	2(4)	2(4)	2(4)					
Chemistry 81	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Qual. Analysis 82					2(4)				
Surveying 102							1(4)		
Electricity 120								3	
Desc. Geometry 387							2(2)	2(2)	2
Shopwork 389									(8)
Junior Year.									
I									
Calculus 369							5	5	5
Eng. Literature 167	3	3	3	3	3	3	3	3	3
English 169						4*			
Eng. Comp. 170	1	1	1	1	1	1	1	1	1
History 184						4*			
Oratory 424						4*			
Civics 200	3	3	3	3	3	3	3	3	3
German 322	3	3	3	3	3	3			
French 340						4			
Plant Production 5	3(4)								
Farm Management 8	2								
Breeds 21		1(6)							
Breeding 22		3							
Com. Pomology 243			2(2)‖						
Veg. Culture 262			2(2)‡						
Landscape Gar. 282			2(2)§			2(2)**			
Plant Physiology 67				(6)†					
Plant Morphology 68			2(4)	2(4)		2(4)*			
Eco. Entomology 224			2(4)	2(4)		2(4)*			
Entomology 225				1(4)!					
Qual. Analysis 82, 83	1(8)	1(8)	1(6)	1(6)	1(8)	1(6)			
Inorganic Prep. 84					(4)	(4) *			
Theo. Chemistry 85					2	2			
Org. Chemistry 88	3	3			3	3*			
Mineralogy 89					1(4)	1(4)*			
Surveying 102							4(4)		
Drawing 103							(8)		
Dynamos 121								3	3
Elec. Lab. 127								(4)	
Machine Design 910								(4)	2(4)
Machine Work 391								(6)	(6)
Steam Engines 392							3	3	3

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Junior Year—Continued.									
II									
Eng. Literature 167.	3	3	3	3	3	3	3	3	3
English 169						4*			
Eng. Comp. 170	1	1	1	1	1	1	1	1	1
History 184						4*			
Oratory 424						4*			
Civics 200	3	3	3	3	3	3	3	3	3
German 322	3	3	3	3	3	3			
French 340						4			
Animal Nutrition 25		4(2)							
Anat. and Phys. 452.	3	3							
Bacteriology 463	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)**			
Small Fruits 244			1(4)‖			1(4)***			
Prac. Pomology 246.			2(4)‖						
Veg. Culture 263			2‡						
Veg. Culture 264			1(8)‡						
Floriculture 283			2(4)§			2(4)**			
GreenhouseCons. 284			2(2)§						
Economic Plants 69.	2(4)		2(4)	2(4)					
Seed Analysis 70				1(6)†					
Zoology 226		1(4)*		1(4)		1(4)***			
Sys. Entomology 226				2(4)!					
Theo. Chemistry 85.					1				
Quan. Analysis 86.87	1(6)	1(4)*			1(12)	1(6)**			
Org. Chemistry 88					3	3***			
Drawing 103							(8)		
Railway Eng. 104							3		
Struct. Design 105							2(4)		
Mech. Materials 106.							3	3	3
Dynamos 121								4	4
Elec. Lab. 127								(4)	
Machine Design 390.								(4)	2(4)
Machine Work 391								(6)	(6)
Graph. Statics 393							4	4	4
III									
Logic 165	3	3	3	3	3	3	3	3	3
English 169						4*			
Eng. Comp. 170	1	1	1	1	1	1	1	1	1
History 184						4*			
Oratory 424						4*			
Business Law 202	3	3	3	3	3	3	3	3	3
German 322	3	3	3	3	3	3			
French 341						3			
Farm Machinery 7	2(4)	2(4)	2(4)						
Dairying 24	3	3(4)							
Animal Nutrition 26		2(2)							
Small Fruits 245			2(4)‖			2(4)***			
Prac. Pomology 246.			2(2)‖						
Veg. Culture 263			2‡						
Veg. Culture 264			1(4)‡						
Veg. Culture 265			2‡						
Plant Materials 285.			2(4)§			2(4)**			
Tree Surgery 286			1(4)§						
Micro Botany 71				2(4)†	2(4)	2(4)**			
Veg Pathology 73	2(4)		2(4)	2(4)					
Botany 74.				1(6)†					
Zoology 226		1(4)*		1(4)					
Sys. Entomology 227				2(4)!					
Entomology 228				1(6)!					
Theo. Chemistry 85.					1				
Quan. Analysis 87	1(4)	1(4)*				1(6)***			
Org. Chemistry 88					3				

Four-Year Course—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Junior Year—Continued.									
III—Continued.									
Vol. Analysis 91					2(10)	2(4)**			
Drawing 103							(4)		
Railway Eng. 104							3		
Struct. Design 105							2(4)		
Mech. Materials 106							5	5	5
Practical Prob. 111							(8)		
Dynamos 121								3	3
Batteries 126								2	
Elec. Lab. 127								(6)	
Elec. Design 129								(6)	
Machine Design 390									2(8)
Machine Work 391								(4)	(8)
Research and Thesis	(2)								
Senior Year.									
I									
Eng. Classics 171						4			
Psychology .172	4	4	4	4	4	4			4*
Eng. Comp 174	1	1	1	1	1	1	1	1	1
Economics 201	4	4	4	4	4	4	4	4	4
Economics203						4*			
Civics 204						4*			
Latin 303						4*			
German 322						4*			4*
French 342						4*			
Crop Production 9 or Soils 10	3(4)								
Dairying 24		1(6)*							
Stock Judging 25		(4)							
Animal Nutrition 26		2(4)							
Farm Forestry 40	2(4)	2(4)	2(4)						
Sys. Pomology 247			2(4)‖						
Small&VineFr'ts 248			2(2)‖						
Veg. Culture 266			3(6)‡						
Landscape Des. 287			2(4)§			2(4)*			
Civic Art 288			2(2)§						
Botany 75				4(6)†					
Entomology 234				4(6)!					
Botany 75 or Entomology 234			2	3(6)					
Quan. Analysis 87	(4)	(4)							
Agr. Chemistry 92	4	4*	4		4	4*			
Agr. Analysis 93					(24)	(8)*			
Hydraulics 107							3	3	
Highways 108							4		
Practical Prob. 111							(12)		
Alternators 122								5	
Elec. Lights 123								2	
S.C. Laboratory 128								(8)	
Struct. Design 394							2(4)		2(4)
Mech. of Eng. 395							3		3
Thermodynamics396								2	2
Heat and Vent. 397									2(2)
Exp'mental Eng.399									(8)
Research and Thesis	(2)		(2)‖ (4)‡ (2)§	1(4)				(8)	

Four-Year Courses—Continued.

Term and Subject.	Agriculture						Engineering		
	Agronomy	Animal Husbandry	Horticulture	Biology	Chemistry	General	Civil	Electrical	Mechanical
Senior Year—Continued.									
II									
Eng. Classics 171						4			
Pedagogics 173	4	4	4	4	4	4	4*		
Eng. Comp. 174	1	1	1	1	1	1	1	1	1
Economics 201	4	4	4	4	4	4	4	4	4
Economics 203						4*			
Civics 204						4*			
Latin 303						4*			
German 322			4			4*	4*		
French 342						4*			
Poultry 28		2							
Bacteriology 464	(8)	(8)							
Animal Diseases 466	5(6)	5(6)							
Sys. Pomology 247			2(2)‖						
Horticulture 249			1(2)‖						
Plant Breeding 255	2		2‖						
Veg. Culture 267			4(4)‡						
Planting Plans 289			2(6)§			2(4)*			
Floral Dec. 290			(2)§						
App. Entomology 232			2(4)						
Botany 75				4(6)†					
Entomology 234				4(6)!					
Botany 75 or Entomology 234				3(6)					
Organic Prep. 90					(16)				
Chemistry 94					6(4)	6(4)*			
Hydraulics 107							5	5	
Practical Prob. 111							(4)		
Computing 112							(6)		
Alternators 122								3	
Elec. Lights 123								2	
Tel. and Tel. 124								2	
A. C. Laboratory 128								(8)	
Struct. Design 394							2(4)*		2(4)
Mech. of Eng. 395							4		4
Thermodynamics 396									3
Hydromechanics 398									3
Exp'mental Eng. 399									(8)
Research and Thesis	(4)	(4)	(2)‖ (4)‡ (4)§	1(4)			(4)	(8)	(4)
III									
Eng. Classics 171						4			
Pedagogics 173	4	4	4	4	4	4	4*		
Eng. Comp. 174	1	1	1	1	1	1	1	1	1
Economics 201	4	4	4	4	4	4	4	4	4
Economics 203						4*			
Civics 204						4*			
Latin 303						4*			
German 322						4*	4*		
French 342						4*			
Farm Management 8	2(4)								
Crop Production 9 or Soils 10	3(4)								
Stock Judging 25		(4)							
Animal Nutrition 26		3(2)							
Small Fruits 250			2(4)‖						
Pomology 251			2(2)‖						
Nut Culture 252			2(2)‖						
Plant Breeding 255	2(2)		2(2)‖						
Veg. Culture 267			4(4)‡						
Veg. Culture 268			4(4)‡						
Exotics 291			2§						
Landscape Gar. 292			2(2)§						
Landscape Prac. 293			2(8)§			2(4)*			
Animal Parasites 233		2(4)							

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Eletrical	Mechanical
Senior Year—Continued.									
III—Continued.									
Botany 75	.....	.....	.....	4(6)†	.....	.....	.....	.....	.....
Entomology 234	.....	.....	.....	4(6)!	.....	.....	.....	.....	.....
Botany 75 or Entomology 234	.....	.....	.....	3(6)	.....	.....	.....	.....	.....
Chemistry 95	.....	.....	.....	.....	5(2)	5(6)*	.....	.....	.....
Surveying 101	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Est. of Cost 109	.....	.....	.....	.....	.....	.....	1(2)	.....	.....
Concrete 110	.....	.....	.....	.....	.....	.....	2	.....	.....
Practical Prob. 111	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Alternators 122	.....	.....	.....	.....	.....	.....	.....	5	.....
Tel. and Tel. 124	.....	.....	.....	.....	.....	.....	.....	2	.....
Elec. Railways 125	.....	.....	.....	.....	.....	.....	.....	3	.....
A.C. Laboratory 128	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Alt. Design 130	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Struct. Design 394	.....	.....	.....	.....	.....	.....	2(4)*	.....	2(6)
Mech. of Eng. 395	.....	.....	.....	.....	.....	.....	4	.....	4
Thermodynamics 396	.....	.....	.....	.....	.....	.....	.....	.....	3
Exp'mental Eng. 399	.....	.....	.....	.....	.....	.....	.....	.....	(4)
Research and Thesis	2(4)	4(4)	(6)‖ (8)‡ 2(8)§	1(4)	(20)	.....	(8)	(8)	2(8)

*Courses marked with asterisks are alternative. Senior students in the General Course must elect from the alternative courses a sufficient number to cover 12 periods of work.

‖For students specializing in Pomology.

‡For students specializing in Vegetable Culture.

§For students specializing in Landscape Gardening and Floriculture.
For students specializing in Botany.

!For students specializing in Entomology.

Sub-Collegiate Courses.

Preparatory Year.				Sub-Freshman Year.			
Subject.	Term.			Subject.	Term.		
	I	II	III		I	II	III
Arithmetic 360	(2)	(2)	(2)	Algebra 362	4	4	4
Algebra 362	5	5	5	Plane Geometry 363	4	4	4
English 160	5	5	5	Physics 140	3	3	3
Elocution 420	(2)	(2)	(2)	English 161	5	5	5
U. S. History 180	5	5	.....	Elocution 421	(2)	(2)	(2)
English History 181	.....	.....	5	General History 182	2	3	3
Latin 300	4	4	4	Latin 301	3	3	3
Phys. Geography 14	.....	(4)	.....	Agronomy 1	.....	.....	(2)
Animal Husbandry 20	(2)	.....	.....	Sanitation 460	.....	(2)	.....
Horticulture 240	.....	.....	(2)	Botany 61	(2)	.....	.....
Plant Life 60	.....	.....	(2)	Entomology 220	.....	.....	(2)
Animal Life 220	(2)	.....	.....	Shopwork 382	(4)	.....	.....
Freehand Drawing 380	(4)	(4)	.....	Hygiene 441	.....	(2)	.....
Shopwork 381	.....	.....	(4)	.....	.....	.....	.....

Two-Year Courses.

First Year.		Second Year.			
Agriculture and Horticulture.		Agriculture.		Horticulture.	
TERM I.					
Soils 3	2(4)	Plant Production 5	3(4)	Commercial Pomology 243	2(2)
Breeds and Scoring 21	1(2)	Farm Machinery 7	2(4)	Vegetable Culture 266	3(6)
Fruit Growing 242	2(4)	Farm Management 8	2	Home Grounds 281	2(4)
Landscape Gardening 280	(2)	Principles of Breeding 22	3	Farm Machinery 7	2(4)
Seeds and Weeds 62	(4)	Animal Nutrition 26	2	Farm Management 8	2
Farm Chemistry 80	2(2)	Farm Forestry 40	2(4)	Farm Forestry 40	2(4)
Farm Arithmetic 360	3	Commercial Pomology 243	2(2)	Farm Literature 162	(2)
English 161	5	Farm Literature 162	(2)	English Composition 165	1
Farm Literature 162	(2)	English Composition 165	1		
TERM II.					
Soils 3	2(4)	Grain Judging 11	2(4)	Small Fruits 244	1(4)
Fruit Growing 242	2(4)	Stock Judging 25	(4)	GreenhouseCrops 264	1(8)
Vegetable Culture 260	(2)	Animal Nutrition 26	2	Greenhouse Construction 284	2(2)
Farm Buildings 461	2(4)	Stock Feeding 27	(4)	Spraying 231	2(2)
Farm Chemistry 80	2(2)	Poultry 28	2	Poultry 28	2
English 161	5	Dairy Bacteriology 465	(2)	Animal Diseases 467	2(4)
Farm Literature 162	(2)	Animal Diseases 467	2(4)	Farm Literature 162	(2)
Mechanical Drawing 384	(4)	Small Fruits 244	1(4)	English Composition 165	1
Farm Woodwork 386	(4)	Farm Literature 162	(2)	Business Law 202	3
		English Composition 165	1		
		Business Law 202	3		
TERM III.					
Farm Crops 2 / Farm Drainage 4	2(4)	Fertilizers 6	2(4)	VegetableCulture 265	2
Elementary Pomology 241	1(2)	Crop Production 9 or Soils 10	3(4)	VegetableCulture 267	(4)
Farm Botany 64	2(4)	Dairying 24	3(4)	Floriculture 283	2(4)
Farm Zoology 229	2	Vegetable Culture 267	(4)	Plant Materials 285	2(4)
Farm Chemistry 80	2(2)	Plant Diseases 72	2(2)	Fertilizers 6	2(4)
Farm Accounts 361	(4)	Insect Pests 230	2(4)	Plant Diseases 72	2(2)
English 161	5	Farm Literature 162	(2)	Insect Pests 230	2(4)
Farm Literature 162	(2)	English Composition 165	1	Farm Literature 162	(2)
				English Composition 165	1

GENERAL INFORMATION.

REQUIREMENTS FOR ADMISSION TO THE COLLEGE.

A candidate for admission to the College must present, together with his Scholastic Record, a certificate of good moral character; and if the candidate be from another school or college, the certificate must show that he left such institution in good standing.

METHODS OF ADMISSION.

There are two methods of gaining admission to the Freshman Class:

(1.) *By Certificate.*—The College will accept certificates from approved high schools of Maryland and the District of Columbia, and from accredited academies and preparatory schools of this State and of other States.

The certificates presented by the candidate must be officially certified by the principal of the school attended. It must state in detail the work completed by the candidate and, if the candidate be from a Maryland high school, the certificate should state that the candidate has completed, at least, the tenth year of the course of study as outlined for Maryland schools by the State Board of Education.

All admissions by certificates are regarded as merely provisional. That is, while a student presenting a proper certificate is admitted to such standing as it shows him entitled to, he may be required to take a special examination or to do special work in any subject in which his preparation proves to be unsatisfactory; or if, after a fair trial, he fails to maintain a standing in the class to which he was admitted, he may be dropped to a lower class.

Blank certificates conveniently arranged for the desired data, will be sent to all principals and, upon application, to prospective students.

(2.) *By Examination.*—Candidates not admitted by certificate will be required to stand written examinations upon the entrance subjects. These examinations will be held for 1913 on June 11th and 12th, and September 16th and 17th.

Requirements for admission to the Freshman Class for the session of 1913-14 will be as follows:

Number of Units Required.—For the present, thirteen (13) units are required for entrance. This is equivalent to the completion of, at least, the tenth grade of the course of study as outlined for Maryland schools by the State Board of Education. A unit designates not less than four or five "periods" of classroom work or eight or ten "periods" of laboratory work per week, continued throughout the school year, each "period" being not less than forty minutes.

DISTRIBUTION OF THE REQUIRED UNITS.

Of the thirteen (13) units required for admission to the Freshman Class, eleven and one-half (11½) are specified as follows:

Group I	English	3	units	5½ required
	Mathematics: Algebra	1½	"	
	Mathematics: Plane Geometry	1	"	
Group II	American History and Civics	1	"	2 required
	English History	1	"	
	Ancient History	1	"	
	General History	1	"	
Group III	Latin	1 or 2	"	2 required
	German	1 or 2	"	
	French	1 or 2	"	
Group IV	Physics	1	"	2 required
	Chemistry	1	"	
	Botany	½	"	
	Physical Geography	½	"	
	Zoology	½	"	
	Physiology	½	"	
Group V	Shop Work	½	"	0 required
	Drawing	½	"	
	Special Agricultural Subjects	½	"	

The additional one and one-half (1½) units may be offered from Groups II, III, IV or V.

Deficiencies.—A deficiency of two units will be allowed a candidate as conditions, but such conditions must be removed by the end of the Scholastic Year in which the candidate is admitted.

SUGGESTIONS FOR PREPARATION IN THE REQUIRED SUBJECTS.

GROUP I.

ENGLISH.—Preparation in English has two main objects: (1), command of correct and clear English, spoken and written; (2), power to read with intelligence and appreciation.

To secure the first end, training in grammar and the simple principles of rhetoric and the writing of frequent compositions are essential. The candidate must be able to spell, capitalize and punctuate correctly. He must show a practical knowledge of the essentials of English grammar, including ordinary grammatical terminology, inflection, syntax, the use of phrases and clauses; a thorough training in the construction of the sentence; and familiarity with the simpler principles of paragraph division and structure.

To secure the second end the candidate is required to read the works named below under A and B. The list is intended to give the candidate the opportunity of reading, under intelligent direction, a number of important pieces of literature.

ENGLISH A. For reading and practice. (One and one-half units.) The candidate should read the works prescribed below with a view to understanding and enjoying them. He will be expected to show a reasonable degree of familiarity with their substance. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number set before him in the examination paper.

FOR STUDENTS ENTERING IN 1913:

Shakespeare's "As You Like It" and "Julius Caesar"; Addison's "Sir Roger de Coverley Papers"; Scott's "Ivanhoe"; Goldsmith's "Vicar of Wakefield"; Irving's "Sketch Book"; Macaulay's "Lays of Ancient Rome"; Longfellow's "Evangeline"; Lowell's "Vision of Sir Launfal"; Poe's "Raven"; Eliot's "Silas Marner"; Gray's "Elegy Written in a Country Churchyard."

ENGLISH B. For study and practice. (One and one-half units.) The candidate should read the books presented below with the view of acquiring such knowledge of their contents as will enable him to answer specific questions with accuracy and some detail. The examination is not designed, however, to require minute drill in difficulties of verbal expression, unimportant allusions and technical details.

FOR STUDENTS ENTERING IN 1913:

Shakespeare's "Macbeth"; Milton's "L'Allegro," "Il Penseroso," and "Comus"; Macaulay's Essay on Johnson or Carlyle's Essay on Burns; Washington's Farewell Address and Webster's First Bunker Hill Oration or Burke's Speech of Conciliation with America.

ALGEBRA TO QUADRATICS. (One unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. The four fundamental operations; factoring; highest common factor and least common multiple; fractions (including their conception as ratios) and complex fractions; powers and roots; the solution of linear equations, both numerical and literal, and of problems depending on linear equations; radicals and the theory of exponents; and the solution of simple second degree equations in one unknown quantity by factoring.

ALGEBRA FROM QUADRATICS. (One-half unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. Equations with one or more unknown quantities, to be solved by the methods of linear or quadratic equations; ratio, proportion and variation; variables and limits; properties of series, including the binomial theorem for positive integral exponents, and the formulas for the nth term and sum of the terms of arithmetical and geometrical progressions with applications; logarithms.

PLANE GEOMETRY. (One unit.) As treated by Wentworth, McMahon, Phillips and Fisher, or an equivalent. The usual theorems and constructions, including the general properties of plane rectilinear figures, the circle and measurement of angles, similar polygons, areas, regular polygons and the measurement of the circle; the solution of original exercises, including loci problems; and the application to the mensuration of lines and plane surfaces. The student should be able to prove every statement made, going back step by step until it rests upon primary definitions or axioms.

GROUP II.

AMERICAN HISTORY. (One unit.) Channing's Student's History of the United States, McLaughlin's History of the American

Nation, Hart's Essentials in American History, or an equivalent. The discovery, exploration and settlement of America; the colonial policy of England, culminating in the Revolution; the political, economic and social history of the United States since the adoption of the Constitution.

ANCIENT HISTORY TO 300 A. D. (One unit.) If a single text book is used, it should be West's Ancient World, Wolfson's Essentials in Ancient History, Morey's Outlines of Ancient History, or an equivalent.

ENGLISH HISTORY. (One unit.) Cheyney's A Short History of England, Andrew's History of England, Walker's Essentials in English History, Montgomery's English History, or an equivalent.

GENERAL HISTORY. (One unit.) Myer's, Fischer's or Colby's General History, or an equivalent.

The entrance examinations in History will be so framed as to require comparison and the use of the judgment, rather than the mere use of the memory.

GROUP III.

ELEMENTARY FRENCH. First Year (One unit.) Aldrich and Foster's Foundations of French and French Reader, or their equivalents.

Second Year (One unit.) Reading of four to five hundred pages of graduated texts.

ELEMENTARY GERMAN. First Year (One unit.) Bacon's German Grammar, or an equivalent.

Second Year (One unit.) Reading of about 300 pages of graduated texts.

LATIN. First Year (One unit.) First Latin Book completed.

Second Year (One unit.) Three Books of Caesar, or an equivalent.

Forms and constructions needed in texts from Standard Latin Grammar. Prose based on texts.

GROUP IV.

PHYSICS. (One unit.) As much as is contained in the text-books of Carhart and Chute, Hall and Bergen, Gage's Elements of Physics, Avery's Elements of Natural Philosophy, or an equivalent.

BOTANY. (One unit.) As much as is contained in Gray's Lessons, Bailey's Elementary Botany, Bergen's Foundations, or an equivalent.

CHEMISTRY. (One unit.) Preparation should include the study of at least one standard text-book, to the end that the pupil may gain a comprehensive and connected view of the most important facts of elementary chemistry. The subjects should be attempted only in schools which possess an adequate equipment; laboratory work is essential and original notes must be submitted; more importance will attach to descriptive chemistry than to analytical, and the student should become as familiar as possible with the commonest non-metals and metals, as well as their simpler compounds.

PHYSICAL GEOGRAPHY. (One-half unit.) A study of the earth, atmosphere, waters and attendant phenomena; the distribution of both animal and vegetable life, and the various industries resulting from the development of the natural resources of the earth.

Text-books on Physical Geography by Gilbert, Davis, Fairbanks, Tarr, or an equivalent.

PHYSIOLOGY. (One-half unit.) The preparation should include the general facts of the anatomy, histology and physiology of the human body and the essentials of hygiene. A text-book, such as the first part of Hough and Sedgwick's The Human Mechanism, or an equivalent should be used in connection with charts and models.

ZOOLOGY. (One-half unit.) The preparation in Zoology should include a general knowledge of common animals of the locality with regard to their ecological relations; the general study of the animal forms such as the Amoeba, a ciliate, an earth worm, insect, frog and mammal. He should have some work in the general physiology of these types and a comparison of life processes in animals and plants. The student should have such general knowledge of the animal kingdom, the characteristics of the Phyla and principal classes of animals as is given in Davison's Practical Zoology.

GROUP V.

SHOPWORK. (One-half unit.) A candidate who offers shopwork as an entrance subject is asked to present a detailed state-

ment from his instructor, setting forth the kind and amount of work done.

DRAWING. (One-half unit.) Candidate must present a detailed statement from his instructor showing the kind and amount of work done and submit drawings done by himself.

SPECIAL AGRICULTURAL SUBJECTS. (One-half unit.) This class includes nature studies and other allied subjects not specifically designated in Group IV.

FOR ADVANCED STANDING. Applicants for advanced standing in any course, in addition to satisfying the requirements for admission to the Freshman Class, must pass an examination in the studies which have been pursued by the class for which they are candidates. Work done elsewhere is accepted when properly certified and found on examination to be equivalent in extent and quality to that required at this College.

EXAMINATIONS FOR ADMISSION TO ANY HIGHER CLASS will be held at the College in June and September at the same times as examinations for admission to the Freshman Class.

CANDIDATES FOR THE SUB-FRESHMAN CLASS will be required to present certificates or to pass examinations covering the work outlined for the Preparatory Class, or an equivalent.

FOR ENTRANCE TO THE PREPARATORY CLASS the requirements are: English grammar, arithmetic, United States history and geography.

Students from newly acquired territory or any foreign country must have a local guardian appointed with parental powers, with whom the President can deal in any case of emergency. Students who cannot speak English are undesirable, and are advised that satisfactory progress at this College on their part cannot be expected until they have familiarized themselves partly, at least, with the English language.

EXAMINATIONS AND PROMOTIONS.

In order to pass from one class to the next higher a student is required to pass an examination in each study pursued, by a mark of at least sixty per cent., and to have a combined mark in each branch (daily and examination) of at least seventy per cent.

A student will not be promoted if it is manifest that he cannot pursue successfully the advanced work.

For rules for military promotions see Military Department.

REPORTS.

Detailed reports are sent to parents and guardians at the end of every quarter. These give the grade of the student in every branch of study, his attendance record, and his conduct record with comment by the President upon each item.

In addition to this, monthly reports are issued for October, November, January, February and April. These give general information as to scholarship, conduct, attendance and health, and call attention to deficiency in any one of these particulars.

GRADUATION AND DEGREES.

Degrees are granted by the Board of Trustees upon the recommendation of the Faculty.

All applications for degrees must be approved by the Faculty.

BACHELOR OF SCIENCE.

As a requisite for graduation the candidate for this degree must have completed the work previously outlined, including a thesis.

The subject for this thesis must be approved prior to February 1st, by the head of the department in which the investigation is to be pursued, and the thesis must be submitted not later than May 15th.

MASTER OF SCIENCE.

The degree of Master of Science may be conferred as follows:

1. Upon persons who have taken the degree of Bachelor of Science in a recognized institution, and have pursued successfully at this College for one year a course of graduate study, satisfying the following requirements:

The course shall consist of a major subject and two minor subjects germane to the major subject and shall be approved by the professor in charge of the major subject.

At least one minor subject shall be in a different department from the major subject.

The course shall occupy not less than fifteen credit periods per term.

Not fewer than five credit periods per term shall be devoted to the minor subjects.

A thesis satisfactory to the professor in charge of the major subject shall be presented.

2. Upon college graduates of not less than two years' standing, who are employed in any of the departments of the College, including the Experiment Station, and who have completed the equivalent of the above course of study. Candidates under this clause must have their applications approved at least eighteen months before they contemplate receiving their degree.

3. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course equivalent to (1) and have presented a satisfactory thesis.

MASTER OF ARTS.

The degree of Master of Arts may be conferred upon graduates of this College holding the Bachelor of Arts degree, and who conform to the following rules:

1. The candidate must apply for the degree in writing at least one scholastic year before the degree may be conferred. The application must contain a description of extra work, by virtue of which the candidate expects to receive the degree.

2. The candidate must submit one or more theses on subjects assigned by the Professor of English and Civics; said thesis or theses must be approved by the President of the College, the Professor of English and Civics and the Professor of Languages of this College.

3. The candidate must be prepared to submit to an examination in the works of the following authors: Cæsar, Nepos, Sallust,

Virgil, Cicero, Ovid, Horace, Livy, Tacitus, Plautus, Terence, Juvenal.

MECHANICAL ENGINEER.

The degree of Mechanical Engineer (M. E.) may be conferred as follows:

1. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course consisting of a major and two minor subjects, and presented a satisfactory thesis. The course of study shall be outlined by the heads of the Departments of Civil, Electrical and Mechanical Engineering.

2. Upon graduates of this College who have had three years' professional experience of an acceptable character. Such candidates must present a full report of such experience and such other information as to the qualifications for the degree as may be found desirable, and in addition shall present a satisfactory thesis.

3. All candidates must be at least Junior members of the American Society of Mechanical Engineers. All applications for degrees must be approved twelve months prior to the date they contemplate receiving the degree, and the thesis must be presented at least one month prior to such date.

CIVIL ENGINEER.

The degree of Civil Engineer may be conferred upon any candidate who is a graduate of this College with the degree of Bachelor of Science in Civil Engineering, and has been engaged in engineering pursuits for not less than three years since graduation, provided:

1. That he shall be at least a Junior member of the American Society of Civil Engineers.

2. That he shall accompany his application with a synopsis of the work upon which he bases his request.

3. That the Committee composed of the heads of the Civil, Electrical and Mechanical Engineering Departments, to whom his application shall be referred, shall consider him eligible.

4. That previous to receiving the degree he shall comply with such further conditions as the aforesaid committee shall impose.

SCHOLARSHIPS.

REGULAR.—To encourage worthy young men who desire a collegiate education, the Board of Trustees has established for each county in the State of Maryland and for each of the four legislative districts of Baltimore city one scholarship to be awarded under the following conditions:

1. The holder of the scholarship will be allowed a reduction of $120.00 from the regular annual charge of $240.00 for board, heat, light, room, use of books, laundry, etc.

2. The appointment is made by the School Board of each county and of Baltimore city after due notice in some local paper.

3. In case there are more applicants than one, the selection shall be made by competitive examination and the candidate who proves best qualified by such examination shall be selected for this scholarship.

4. In case of a tie, the award shall be made to the candidate less able financially to meet the expense of an education.

5. An alternate may be named and certified to the President of the College and said alternate shall be eligible to hold the scholarship if the principal shall fail to qualify or withdraw during the year succeeding his appointment.

6. The appointment shall be made for a term of four years.

7. The holder of such scholarship: (a)—must be qualified to enter the Sub-Freshman Class of this College, that is, he shall have a competent knowledge of arithmetic, algebra as far as quadratics, geography, history of Maryland and history of United States, English grammar and composition; (b)—must be of approved moral character and at least 15 years of age.

8. The scholarship will be forfeited by persistent indifference to scholastic work or by continued disregard of the rules of discipline of the College.

9. The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

10. Certificates will be furnished in blank by the College and one shall be given to the successful applicant and a duplicate sent to the President of the College.

11. In case any county or district fails to send one or more candidates for examination to fill an existing vacancy, or in case of the failure of both principal and alternate to meet the requirements of the College, the vacancy may be filled for the current Collegiate Year at the discretion of the President, by any meritorious student from another county who meets the requirements, and at the end of that year, the vacancy shall be again certified to the county or district to which it pertains.

INDUSTRIAL.—For the encouragement of worthy young men of limited means, towards getting a college education, a limited number of industrial scholarships has been established by the Board of Trustees to be awarded under the following conditions:

1. The number of scholarships will depend upon the amount of service required.

2. The holder will receive a reduction of $140.00 from the regular annual charge of $240.00 for board, heat, light, room, use of books, laundry, etc.

3. In consideration of this reduction, the holder of such a scholarship will be required to render to the College certain specified services such as work in the dining-room, on the corridors, in the library, etc.

4. Such services will not prevent the holder from drilling with the cadet battalion on alternate days.

5. Vacancies as they occur shall be filled by the President of the College and ratified by the Executive Committee of the Board of Trustees.

6. The holder of an industrial scholarship: (a)—must be more than 15 years of age and of normal size, health and strength; (b)—must be of approved moral character as attested by some well-known resident of his locality; (c)—must be qualified to enter the Sub-Freshman Class of the College, that is, he shall have a compe-

tent knowledge of arithmetic, algebra as far as quadratics, geography, history of Maryland and history of United States, English grammar and composition.

7. The appointment shall be made for a term of four years.

8. The scholarship will be forfeited by persistent indifference to scholastic work or by continued disregard of the rules of discipline of the College.

9. The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

10. The scholarship will be forfeited in case the services required of the holder are not satisfactory to those in charge of the work.

STUDENT OPPORTUNITIES.

A limited amount of money can be earned by students by taking advantage of the opportunities arising from time to time to do clerical work, tutoring and such other labor as may not interfere with the regular scholastic duties. Those in need of help to continue their work, and whose course is marked by an earnest desire to succeed, are always given the preference.

FACILITIES FOR RELIGIOUS WORSHIP.

The College is undenominational in character. The daily exercises of the College are opened with religious worship in the College Chapel.

Students are encouraged to attend the church of their choice on Sunday mornings. There is an Episcopal church at College Park; and at Berwyn, one mile north, and at Riverdale, one mile south, are Presbyterian churches. In Hyattsville, two miles south, may be found Catholic, Episcopal, Presbyterian, Baptist and Methodist churches. In the city of Washington are churches of all denomi-

nations, and leave is granted to students to attend service in this city on Sunday mornings. Parents are urged to insist upon their sons attending the church of the faith of their parents.

COLLEGE REGULATIONS.

The attention of parents is earnestly called to the following rules in force at this College: The College authorities can succeed in conferring the maximum amount of training upon the student only with and by the active support and earnest co-operation of the parent. The President of the College is always ready and willing to discuss with his parent or guardian any failures in a student's record, and correspondence on this subject is always appreciated.

No student will be accepted as a matriculate until the contract card containing the following agreement for matriculation is signed by parent or guardian, and received by the President of the College.

It is understood that the President of the College as the executive of the same, and acting for the Board of Trustees, a party to this contract, *has the right to ask the withdrawal of a student at any time, when in his judgment such withdrawal may be necessary either for the interest of the young man or the institution which he attends. It is further understood that a parent or guardian can at any time withdraw his son or ward, subject to regulations herein set forth.*

A cadet manifesting indifference to the observance of the rules and regulations of the institution, or wanting in proper attention to the preparation of his work, will be cautioned to improve. Failing to do so his parents, upon notice given by the President, must withdraw their son.

A special pledge to refrain from what is popularly known as *"hazing,"* and taking unfair means in examinations is required of every applicant for entrance, before he will be allowed to matriculate. Parents should impress upon their sons that failure to live up to this pledge is a dishonor which unfits them to be longer stu-

dents of the College. *"Hazing" is invariably punished by instant dismissal.*

Frequent absences from the College are invariably of great disadvantage to the student, in breaking in upon the continuity of his work and in distracting his mind from the main purpose of his attendance at the institution. Parents are therefore earnestly asked to refrain from granting frequent requests to leave the College.

Students will not be permitted to leave classes or quarters during study hours to answer telephone calls, unless they are urgent.

Students will not be permitted to make contracts or to sell any article to their associates without the approval of the President.

The sale of second hand furniture or clothing to new cadets is prohibited unless the sale be approved by the Commandant of Cadets.

The College will not be responsible for articles left in the barracks during vacation, nor for valuables left by students in their rooms at any time. They should be deposited with the College Treasurer, who will place them in the College safe and give a receipt therefor.

RULES OF COMMITTEE ON COLLEGIATE ROUTINE, ENDORSED BY THE FACULTY.

1. A student may not change his course of study unless at the written request of his parent or guardian, and after said request has been endorsed by the head of the course abandoned, and the head of the course requested, and approved by this committee.

2. Examinations to make up conditions acquired in any term will be given only on the mornings and afternoons of certain Saturdays in the following term set apart for this purpose, and at such dates as shall be provided for entrance examinations at the beginning of the scholastic year. On these dates students having conditions will be expected to take the examinations as scheduled and will be permitted to do so without the payment of a fee. Should, for any reason, an examination be requested at any other time, a charge of $1.00 will be made for each subject on which the applicant is examined, provided that all such special examinations shall be authorized by the faculty.

3. To attain proficiency a student must make an examination grade of 60 per cent.; also a term average of 70 per cent. In case of failure, upon re-examination a grade of 70 per cent. is required.

4. A credit period is one theoretical or two practical periods per week for one term.

5. A student may not be promoted if conditioned in more than one-fifth of the credit periods required for one year's work, provided that no student may be promoted with more than one condition in any one department.

6. A student may not be promoted if he has any conditions of more than a year outstanding.

7. Any student who uses unfair means in examination will: (1) receive no further examination in same subject; (2) receive zero for examination grade; (3) receive no commission; (4) receive no diploma.

8. A student is subject to an oral examination at any time within ten days after written examination.

9. An examination paper, containing erasures or showing alterations, may be rejected at the discretion of the Professor in charge, and a new examination ordered by this committee.

10. In computing term averages the daily grade is computed at 2, and the examination grade at 1.

11. The yearly averages in all studies is computed by giving each subject a weight according to the mean number of periods per week involved; theoretical periods being given a value of 2, practical periods 1.

12. Senior students must submit subjects for graduating theses prior to February 1st, and all theses for graduation must be completed prior to May 15th.

13. No special courses are permitted save by consent of this committee. In case consent is granted for a special course, the certificate awarded attesting work will not have the College seal nor the Governor's signature.

14. No student may take work in more than one class during any one term.

STUDENT EXPENSES.

The expenses of the College Year for the several classes of students are as follows:

BOARDING STUDENTS.—Board, heat, light, room, use of books, and laundry, $240.00 in four equal instalments in advance.

SCHOLARSHIP STUDENTS.—Board, heat, light, room, use of books, and laundry, $120.00 in four equal instalments in advance.

DAY STUDENTS.—Room, heat, tuition, and use of books, $50.00 in four equal instalments in advance.

Students entering College after November 1st, or withdrawing prior to the close of the scholastic year, will be charged for the time they are in attendance, as follows:

Boarding students at the rate of $30.00 per month.

Scholarship students at the rate of $15.00 per month.

Day students at the rate of $6.00 per month.

Students withdrawing more than two weeks after entrance will be charged for at least one month's attendance.

Students withdrawing less than two weeks after entrance, will be charged at the rate of $2.00 per day.

Table board for students not rooming at the College will be $14.00 per month, or 25 cents per meal.

No charges against students are discontinued until formal withdrawal has been made.

Students are required to deposit with the Treasurer upon entering the College $15.00 to cover room supplies for the year and general breakage. A deduction in this amount will be made for students furnishing their own supplies.

No diploma will be conferred upon, nor any certificate issued to any student who is in arrears in his account with the College.

Students failing to pay the quarterly charges within 30 days from time due, will be required to withdraw until settlement is made.

No reductions are made for regular vacations.

TIME OF PAYMENT.

For Boarding Students, $60.00 on entrance, $60.00 November 15th, $60.00 February 1st, $60.00 April 1st.

For Scholarship Students, $30.00 on entrance, $30.00 November 15th, $30.00 February 1st, $30.00 April 1st.

For Day Students, $12.50 on entrance, $12.50 November 15th, $12.50 February 1st, $12.50 April 1st.

Students will be required to pay a fee of 25 cents per piece for transportation of baggage to and from station.

In cases of illness, requiring a special nurse and medical attention, the expense must be borne by the student.

Students will be admitted free of cost to membership in the College Athletic Association.

All College property in the possession of the individual student, such as his room, furniture, books, apparatus and military equipment will be charged against him, and the parent or guardian must assume responsibility for its return without abuse to the proper department at the end of each scholastic year, at which time the account will be cancelled. If abused, the cost of replacing or repairing the abused article must be paid by the parent or guardian.

Damage to College property in public places in the building and on the grounds by the student will be charged to the whole student body, pro rata, unless the offender is known. In such cases, the whole expense of repairing or replacing the damaged property will

be charged to the parent or guardian of the offending party. The matriculation of a student is evidence of the acceptance of this regulation.

UNIFORM.

The uniform is the same as worn at the United States Military Academy at West Point. It is made of the best Charlottesville gray cloth, under a special contract with one of the best Military Equipment Houses in the United States. This uniform is furnished at a very low price.

The uniform consists of gray fatigue blouse, gray fatigue trousers and gray fatigue cap, with white waist belt and white cross belt for all military formations. The cost of this uniform and equipment last year was:

Fatigue blouse	$ 7.95
Fatigue trousers	5.45
Fatigue cap	1.60
White waist belt with plate	.50
White cross belt and equipment	.50
Total	$16.00

Measures for this uniform are taken as soon as the student arrives at College, and fit is guaranteed.

Deposits for this uniform must be made with the Treasurer when the measure is taken, as no uniform will be ordered until the money has been deposited for the same. No uniform is paid for until it is approved by the Commandant of Cadets.

In summer the field service uniform is worn, consisting of drab shirt and trousers, canvas leggins, regulation campaign hat, black leather waist belt and black tie.

The cost of the summer outfit is:

2 olive drab, wool shirts at $1.50	$ 3.00
1 campaign hat	.95
1 pair canvas leggins	.85
1 black leather belt	.20
1 black four-in-hand tie	.20
2 pair of white duck trousers at $1.25	2.50
1 pair olive drab trousers	2.30
Total for summer uniform	$10.00

Deposits for the summer uniform must be made immediately after the first of January.

The gray military overcoat has been adopted by the College as the regulation overcoat. It is made of the same material as the uniform and is a warm and durable garment which will last for years. The purchase of the overcoat is optional, but it is advised that it be purchased, since no overcoat other than the gray may be worn with the uniform. The cost is $19.75.

White gloves, collars, etc., can be purchased at the stores near the College.

ARTICLES NECESSARY TO BE PROVIDED.

All students are required to provide themselves with the following articles, to be brought from home or purchased from the College Park stores on arrival:

1 dozen white standing collars.
6 pairs white gloves (uniform).
6 pairs white cuffs.
1 pair blankets (for single bed).
2 pairs sheets (for single bed).
4 pillow cases.
1 chair (uniform).
6 towels.
8 table napkins.
1 pillow.
1 mattress (uniform).
2 clothes bags (uniform).
1 broom.

All the articles marked (uniform) in the foregoing list can best be purchased after the student arrives at the College. The cost of the entire list should not be more than $15.00 for the year. This should be paid to the Treasurer on entrance, as the College has no fund from which it can make advances, and failure to comply with this requirement will subject the student to much inconvenience. Any unexpended balance will be returned promptly.

ACKNOWLEDGMENTS.

MEDALS.—The authorities of the Institution take this opportunity to express their appreciation of the courtesy of their friends in establishing the following, for competition:

William Pinkney Whyte Medal, for excellence in Oratory, offered by Hon. Isaac Lobe Straus, of Baltimore, Md.

Winfield Scott Schley prize, for excellence in Oratory, offered by B. H. Warner, Esq., of Kensington, Md.

James Douglas Goddard Memorial Medal, to student of Prince George's county making the highest average in studies, offered by his sister, Mrs. Annie K. Goddard James, of Washington, D. C.

STUDENT ORGANIZATIONS.

Students' clubs for religious, social, literary and athletic purposes are encouraged as a means of creating class and college pride, and developing an *esprit de corps* among the students. Each class has its own organization, in which matters relating to the class are discussed and directed. Officers are elected and the unity of the class preserved. This has been found to be a decided aid to discipline and tends to raise the standard of student honor.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Much encouraging work has been done by this organization during the past year, and gratifying interest has been shown in the meetings.

OFFICERS.

President, J. R. Reichard.
Vice-President, E. P. Williams.
Secretary, E. V. Benson.
Treasurer, W. E. Harrison.

LITERARY SOCIETIES.

MORRILL SOCIETY.

NEW MERCER SOCIETY.

These societies are invaluable adjuncts to college work. Through them a knowledge of parliamentary law is gained, as well as a readiness of expression and activity in thought, qualities particularly valuable to the American citizen.

The literary society work is under the general supervision of the Professor of Oratory, who is always ready to advise with the members in matters of parliamentary law and train them in the delivery of their orations and debates.

ENGINEERING SOCIETY.

One of the newest and most beneficial additions to the M. A. C. is the Engineering Society. Organized in September, 1912, it proved an immediate success, gratifying a long-felt and much-needed want on the part of the engineering students. The general object of the Society is the cultivation of a more active interest in engineering work, while its special aim is to give the student the opportunity to discuss the line of work in which he is interested and to become more accustomed to presenting his ideas. Inasmuch as the Society takes in all members of the Senior and Junior Classes in the Civil, Electrical and Mechanical Engineering Courses, a larger opportunity for acquiring technical knowledge outside of one's own course is offered.

The Society meets twice a month on alternate Thursdays. Papers are presented at alternate meetings by Engineers in practice and by the students themselves.

OFFICERS.

President, R. S. Healy.
Vice-President, E. P. Williams.
Secretary, M. E. Davis.
Treasurer, H. S. Ford.

THE LIEBIG CHEMICAL SOCIETY.

The Liebig Chemical Society was organized to satisfy a much-felt need. The object of the Society is to have the various chemical problems of the day, discussed by men who have specialized in the different branches of Chemistry, or by the members themselves. This tends to develop a keener interest in Chemistry, and also to broaden the student along Chemical lines.

Membership in this Society is open to all members of the Sophomore, Junior and Senior Classes, who are specializing in Chemistry.

OFFICERS.

President, William K. Robinson.
Secretary, Alfred Nisbet.

ROSSBOURG CLUB.

The social man is a necessity—hence this organization is encouraged and supported by the President and Faculty. The entertainments have been marked by a spirit which emphasizes the wisdom of its organization and justifies its encouragement.

OFFICERS.

President, M. E. Davis.
Vice-President, W. K. Robinson.
Secretary, C. M. White.
Treasurer, H. S. Koehler.

REVEILLE.

The "Reveille" is the College annual, edited entirely by the Senior Class. Fifteen editions of the "Reveille" have appeared, and each has been characterized by a gratifying improvement in the standard both of originality and expression.

EDITORIAL STAFF.

Editor-in-Chief, J. R. Reichard.
Associate Editors, E. E. Powell, W. K. Robinson, M. E. Davis, R. S. Healy.
Business Manager, S. Blankman.
Associate Business Managers, G. P. Trax, A. Nesbit, L. Blankman.

DEPARTMENT EDITORS.

Art, N. A. Le Savoy.
Class History, G. B. Morse.

THE TRIANGLE.

The "Triangle" is the College newspaper, and is published every two weeks during the scholastic year.

EDITORIAL STAFF.

Editor-in-Chief, M. E. Davis.
Junior Editors, J. B. Gray, H. S. Ford, D. L. Johnson.
Sophomore Editor, W. E. Harrison.
Freshman Editor, A. Reisinger.
Alumni Editor, E. N. Cory.
Business Manager, R. W. Truitt.
Assistant Business Managers, A. M. Todd, R. T. Gray.
Alumni Manager, L. B. Broughton.

STUDENT ATHLETIC ASSOCIATION.

Membership in the Athletic Association is open to all students free of charge.

The object of the Association is to foster athletic spirit, prevent indiscretion in athletic matters and co-operate with the Athletic Council in the general management of all athletic affairs.

OFFICERS.

President, C. M. White.
Secretary, R. C. Williams.

ATHLETIC COUNCIL.

The Athletic Council, in conjunction with the Student Athletic Association, manages all athletic affairs. It consists of three members of the Faculty, appointed by the President, and five students, namely, the managers of the football, baseball, track and tennis teams, and the President of the Athletic Association.

THE ORATORICAL ASSOCIATION OF MARYLAND COLLEGES.

The Maryland Agricultural College is a member of this Association, which is composed of St. John's College, Washington College, Western Maryland College and Maryland Agricultural College. Contests are held annually at these colleges in rotation, and a marked improvement is to be observed as a result of its organization.

THE ALUMNI ASSOCIATION.

An Institution can largely be judged by the character of its Alumni. Their success in life is the Institution's pride. The work of the Alumni of a College is its greatest asset. M. A. C. is fortunate in having among its Alumni men who have attained notable achievements in Agriculture, Engineering and Science. M. A. C. Alumni can be found holding prominent positions in all walks of life.

While for many years the Alumni, through their Association, have taken an active interest in the growth and development of the Institution, it is pleasing to state that this interest has been greatly increased during the past two or three years and since the recent great fire at the College, the Association has taken active steps to

aid the Board of Trustees and Faculty in the rehabilitation of the College.

One of the cherished hopes of the Association, that of having direct representation on the Board of Trustees, has been attained in the appointment of the President of the Alumni Association, by the Governor of the State, as a Trustee of the College. The attainment of this end will naturally greatly increase the enthusiasm and interest of the members of the Alumni in co-operating more closely than ever with the College authorities in increasing the scope and usefulness of the Institution.

The Alumni Association continues to offer medals for worthy students in the several collegiate departments, debating societies, etc.

The members have also greatly aided in the development of athletics and especially in conducting the joint athletic meets, which were held at the College during the last two years.

The Alumni also co-operate in the publishing of the Triangle.

The officers of the Alumni Association for the present year are: President, Henry Holzapfel, Jr., '93; Vice-President, Fabian Posey, '97; Secretary-Treasurer, T. B. Symons, '02; Executive Committee, members at large, R. H. Dixon, '06; Wellstead White, '05; Triangle Staff—Alumni Editor, E. N. Cory, '09; Business Manager, L. B. Broughton, '08.

Graduates and members of the Association are requested to keep the Secretary-Treasurer, T. B. Symons, College Park, Md., informed of any change in their address. Any information concerning the older graduates which will enable the officers to locate and communicate with them will facilitate their efforts and will tend to further the success of the Association.

CANDIDATES FOR DEGREES TO BE CONFERRED IN 1913, WITH SUBJECTS OF THESIS.

BACHELOR OF SCIENCE IN AGRICULTURE.

HENRY PECK AMES, COLLEGE PARK, MD.
"The Deterrent Effect of Lime Water in Retarding the Growth of Mold on Germinating Legume and Grass Seeds."

NATHANIEL A. LE SAVOY, NEW YORK CITY.
"The Influence of Breed Upon the Milk and Butter of Cattle."

HUGH S. KOEHLER, BLAIRSVILLE, PENNA.
"Investigation of the Angora Goat Industry of Maryland."

IRVING LOUIS TOWERS, CHEVY CHASE, MD.
"Some Studies of the Causes of Leg Weakness in Chickens."

BACHELOR OF SCIENCE IN HORTICULTURE.

JOHN ROWLAND REICHARD, FAIRPLAY, MD.
"Natural versus Artificial Pollination of Tomatoes in the Greenhouse."

BACHELOR OF SCIENCE IN BIOLOGY.

WILLIAM HENRY WHITE, COLLEGE PARK, MD.
"Fumigation with Hydrocyanic Gas with Special Reference to the Maximum and Minimum Dosage for Numerous Greenhouse Crops."

BACHELOR OF SCIENCE IN CHEMISTRY.

ALFRED NISBET, BALTIMORE, MD.
"Discussion of Methods of Sugar Analysis."

MERCER BROWN MAYFIELD, JR., WASHINGTON, D. C.
"A Study of the Acid Contents of Corn with a View to a New Method of Grading the Same."

WILLIAM KEAN ROBINSON, FRANKTOWN, VA.
"Recovery of Potash from Feldspar."

BACHELOR OF SCIENCE IN GENERAL.

GEORGE BYRON MORSE, JR., RIVERDALE, MD.
"Development of International Arbitration in the Past One Hundred Years."

BACHELOR OF SCIENCE IN CIVIL ENGINEERING.

LEO BLANKMAN, BALTIMORE, MD.
SAMUEL WOLF BLANKMAN, BALTIMORE, MD.
"Design of a 500,000 Gallon Water Tank and Warren Truss Highway Bridge."

MILTON ERNEST DAVIS, BALTIMORE, MD.
"Design of Two Modern Fireproof Buildings Connected by a Concrete Arch Bridge."

WILLIAM B. HULL, WESTMINSTER, MD.
EZEKIEL JOHN MERRICK, JR., SUDLERSVILLE, MD.
ERNEST TRIMBLE, MT. SAVAGE, MD.
"Location of a Spur Track from Lakeland to College Buildings."

EDWIN EMERSON POWELL, BALTIMORE, MD.
"Construction of Broken Stone Roads."

GEORGE PERCIVAL TRAX, EASTON, MD.
"The Determination of a Meridian by Various Methods."

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING.

RALPH SCOTT HEALY, NEW YORK CITY.
"Efficiency and Life Tests on Carbon, Tantalum and Tungsten Lamps."

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING.

CHARLES M'ELROY WHITE, LONACONING, MD.
"Some Engineering Data."

Candidates for Certificates in 1913—Two-Year Courses.

AGRICULTURE.

Emory Wilhide Benson, Cockeysville, Md.
Gladen Davis, Rocks, Md.
Harry S. Dearstyne, Hawthorne, Conn.
Albert Earl Irving, Baltimore, Md.
James Phillip Hanson Mason, Accotink, Va.
Harry Walter Townshend, Mitchellsville, Md.
Henry Whitmore White, Dickerson, Md.

HORTICULTURE.

Alexander Morris Todd, Fort Howard, Md.
Lea Gilpin Willson, Silver Spring, Md.

Medals and Prizes Awarded June 12th, 1912.

For excellence in the Agricultural Course; offered by the Alumni Association:

W. B. KEMP, OF MARYLAND.

Honorable Mention, F. E. ANDERSON, OF MARYLAND.

For excellence in the Horticultural Course; offered by the College:

F. W. ALLEN, OF MARYLAND.

For excellence in the Biological Course; offered by the College:

H. C. F. GILL, OF BALTIMORE CITY.

For excellence in the Chemical Course; offered by the College:

S. C. DENNIS, OF MARYLAND.

For excellence in the Civil Engineering Course; offered by the College:

W. S. GRACE, OF MARYLAND.

Honorable Mention, M. H. MELVIN, OF MARYLAND.

For Excellence in Electrical Engineering Course; offered by the College:

J. G. O'CONOR, OF MARYLAND.

For excellence in the Mechanical Engineering Course; offered by the Alumni Association:

N. R. WARTHEN, OF MARYLAND.

For excellence in Debate; offered by the Alumni Association:

W. B. KEMP, OF MARYLAND.

The William Pinkney Whyte Medal, for excellence in Oratory; offered by Isaac Lobe Straus, Esq.:

N. L. CLARK, OF MARYLAND.

The Goddard Medal, for excellence in scholarship and moral character; offered by Mrs. Annie K. Goddard James:

N. L. CLARK, OF MARYLAND.

MILITARY ORGANIZATION.

COMMANDANT OF CADETS.

Major John A. Dapray.....United States Army.

BANDMASTER AND ARMORER.

Charles L. Strohm.....Late Chief Trumpeter, U. S. Cavalry Band.

BATTALION STAFF.

H. S. Koehler.....Cadet Major.
M. B. Mayfield.....First Lieutenant and Adjutant.
H. P. Ames.....First Lieutenant and Quartermaster.
R. T. Gray .....Sergeant Major.
J. B. Gray.....Color Sergeant.

CADET BAND ORGANIZATION.

Charles L. Strohm, Bandmaster.

M. B. Mayfield.....Adjutant Commanding.
E. J. Merrick.....Principal Musician.
G. B. Morse.....Drum Major.
H. A. Rasmussen.....Sergeant.
H. U. Deely.....Sergeant.
P. A. Hauver.....Corporal.
C. H. Buchwald.....Corporal.
E. M. Roberts.....Corporal.

COMPANY OFFICERS AND NON-COMMISSION OFFICERS.

Company "A."	Company "B."	Company "C."
	CAPTAINS.	
M. E. Davis.	W. K. Robinson.	C. M. White.
	FIRST LIEUTENANTS.	
E. E. Powell.	J. R. Reichard.	W. B. Hull.
	SECOND LIEUTENANTS.	
I. L. Towers.	S. Blankman.	N. A. Le Savoy.
R. S. Healy.	W. H. White.	E. Trimble.
		L. Blankman.
	FIRST SERGEANTS.	
D. L. Johnson.	R. C. Williams.	E. P. Williams.
	QUARTERMASTER SERGEANTS.	
W. S. Fletcher.	J. P. Mason.	H. S. Ford.
	SERGEANTS.	
A. White.	A. M. Todd.	F. H. O'Neill.
W. H. White.	L. R. Rogers.	J. W. Green.

Company "A."	Company "B."	Company "C."
	CORPORALS.	
R. Carter.	C. E. Robinson.	L. Pennington.
P. N. Peter.	E. H. Pierson.	F. J. McKenna.
C. T. Cockey.	R. Dale.	G. S. Frazee.
J. B, Bowland.	T. D. Gray.	O. Carpenter.
R. J. McCutcheon.	M. Levin.	J. H. Knode.
	LANCE CORPORALS.	
		C. F. Hunteman.
		M. A. Thorne.
	FIELD MUSIC.	
H. A. Clark.	J. H. Brandt.	S. C. Wallace.
	B. Dubel.	H. Freundlich.

ROSTER OF MATRICULATES.

SESSION 1912-13.

NAME.	POST OFFICE.	COUNTY.
GRADUATE STUDENTS.		
ADAMS, A. C.,	College Park,	Prince George.
ALLISON, J. F.,	Philadelphia,	*Pennsylvania.*
COBY, E. N.,	College Park,	Prince George.
GARDNER, C. H.,	Baltimore,	*Baltimore City.*
HAYMAN, E. T.,	Baltimore,	*Baltimore City.*
JARRELL, T. D.,	College Park,	Prince George.
LOWREY, S. L.,	Baltimore,	*Baltimore City.*
MAHONEY, W. T.,	Jefferson,	Frederick.
REEDER, W. C.,	Philadelphia,	*Pennsylvania.*
REMSBURG, C. G.,	Knoxville,	Frederick.
RIDGWAY, C. S.,	Auburn,	*Alabama.*
SASSCER, E. R.,	Washington,	*District of Columbia.*
WILLIAR, H. D.,	Baltimore,	*Baltimore City.*
SENIOR CLASS.		
AMES, H. P.,	College Park,	Prince George.
BLANKMAN, L.,	Baltimore,	*Baltimore City.*
BLANKMAN, S.,	Baltimore,	*Baltimore City.*
DAVIS, M. E.,	Baltimore,	*Baltimore City.*
HEALY, R. S.,	New York,	*New York City.*
HULL, W. B.,	Westminster,	Carroll.
KOEHLER, H. S.,	Blairsville,	*Pennsylvania.*
LE SAVOY, N. A.,	New York,	*New York City.*
MAYFIELD, M. B., JR.,	Washington,	*District of Columbia.*
MERRICK, E. J., JR.,	Sudlersville,	Queen Anne.
MORSE, G. B., JR.,	Riverdale,	Prince George.
NISBET, A.,	Baltimore,	*Baltimore City.*
POWELL, E. E.,	Baltimore,	*Baltimore City.*
REICHARD, J. R.,	Fairplay,	Washington.
ROBINSON, W. K.,	Franktown,	*Virginia.*
TOWERS, I. L.,	Chevy Chase,	Montgomery.
TRAX, G. P.,	Easton,	Talbot.
TRIMBLE, E.,	Mt. Savage,	Allegany.
WHITE, C. M.,	Lonaconing,	Allegany.
WHITE, W. H.,	College Park,	Prince George.
JUNIOR CLASS.		
COSTER, J. B.,	Coster,	Calvert.
DEELEY, H. U.,	Baltimore,	*Baltimore City.*
FLETCHER, W. T.,	Alexandria,	*Virginia.*
FORD, H. S.,	Fairmount,	Somerset.
GRAY, J. B., JR.,	Prince Frederick,	Calvert.
GRAY, R. T.,	Grayton,	Charles.
GREEN, J. W.,	Westover,	Somerset.
HOFFECKER, F. S.,	Perryville,	Cecil.

NAME.	POST OFFICE.	COUNTY.
JOHNSON, D. L.,	Frederick.	Frederick.
LEDNUM, R. C.,	Preston,	Caroline.
O'NEILL, F. H.,	Riverdale,	Prince George.
PARKS, G. T.,	Timonium,	Baltimore.
RASMUSSEN, H. A.,	Baltimore,	*Baltimore City.*
ROGERS, L. R.,	Baltimore,	*Baltimore City.*
TRUITT, R. V.,	Girdletree,	Worcester.
WHITE, A.,	College Park,	Prince George.
WILLIAMS, E. P.,	Woolford,	Dorchester.
WILLIAMS, R. C.,	Doncaster,	Charles.

SOPHOMORE CLASS.

ANDRIOPULOS, L. D.,	Hyattsville,	Prince George.
ARMSTRONG, E. W.,	Magnolia,	Harford.
BLUNDON, J. P.,	Riverdale,	Prince George.
BOWLAND, J. E.,	Kingston,	Somerset.
BROWN, R. S.,	Gapland,	Washington.
BUCHWALD, C. H.,	Baltimore,	*Baltimore City.*
CARPENTER, O.,	Plum Point,	Calvert.
CARTER, A. R.,	Annapolis,	Anne Arundel.
CLARK, H.,	Roland Park,	Baltimore.
COCKEY, C. T.,	Pikesville,	Baltimore.
DALE, R.,	Princess Anne,	Somerset.
FIROR, G. H.,	Thurmont,	Frederick.
FORD, B. A.,	Roland Park,	Baltimore.
FRAZEE, G. S.,	Oldtown,	Allegany.
GIBSON, A. M.,	Baltimore,	*Baltimore City.*
GRAY, T. D.,	Grayton,	Charles.
HALL, W. E.,	Baltimore,	*Baltimore City.*
HARRISON, W. E.,	Sparrows Point,	Baltimore.
HAUVER, P. A.,	Smithsburg,	Washington.
KEEFAUVER, L. S.,	Berwyn,	Prince George.
KELLY, W. R.,	Baltimore,	*Baltimore City.*
KISLIUK, M.,	Washington,	*District of Columbia.*
KNODE, H.,	Hagerstown,	Washington.
LEVIN, M.,	Baltimore,	*Baltimore City.*
MCCUTCHEON, R. J.,	Braddock Heights,	Frederick.
MCKENNA, F. J.,	Woonsocket,	*Rhode Island.*
MASSEY, H.,	Massey,	Kent.
MONTELL, E. W.,	Catonsville,	Baltimore.
MYERS, A. W.,	Patapsco.	Carroll.
PENNINGTON, L. R.,	Havre de Grace,	Harford.
PENNINGTON, V. P.,	Millington,	Kent.
PERKINS, W. T.,	Springfield,	Prince George.
PETER, P. N.,	Kensington,	Montgomery.
PIERSON, E. H.,	Washington,	*District of Columbia.*
ROBINSON, C. E.,	Franktown,	*Virginia.*
ROBERTS, E. M.,	Oxford.	*Pennsylvania.*
ROHN, M. E.,	Baltimore,	*Baltimore City.*
SCOTT, R. C.,	Baltimore,	*Baltimore City.*
STEVENS, W. E.,	Stevensville,	Queen Anne's.
TODD, R. N.,	Hurlock,	Dorchester.
TULL, J. J.,	Crisfield,	Somerset.

NAME.	POST OFFICE.	COUNTY.
WALLIS, E. C.,	Riverdale,	Prince George.
WOODLAND, A. R.,	Crisfield,	Somerset.
WRIGHT, F. W.,	Forest Glen,	Montgomery.
	FRESHMAN CLASS.	
AITCHESON, W. J.,	Burtonsville,	Montgomery.
ALTIERA, A. F. J.,		
BOWLING, J. E.,	Berwyn,	Prince George.
CAMPBELL, W. H.,	Kingsville,	*Ohio.*
CHISOLM, J. J.,	Washington,	*District of Columbia.*
CLAYTON, W. G.,	Chesapeake City,	Cecil.
COLBORN, C. G.,	Baltimore,	*Baltimore City.*
DOUB, V. W.,	Middletown,	Frederick.
EDDY, A. E.,	Berwyn,	Prince George.
ERDMAN, L. W.,	Baltimore,	*Baltimore City.*
FALLOWFIELD, F. P.,	Baltimore,	*Baltimore City.*
GATES, H. B.,	Takoma Park,	Prince George.
GOLDBERG, M. J.,	New York,	*New York City.*
GRACE, K.,	Easton,	Talbot.
GRAY, G. B. D.,	Prince Frederick,	Calvert.
HARP, J. R.,	Middletown,	Frederick.
HATCH, C. B.,	Washington,	*District of Columbia.*
HEBBEL, E.,	Baltimore,	*Baltimore City.*
HEBBEL, J.,	Baltimore,	*Baltimore City.*
HENRY, I. H.,	Easton,	Talbot.
HINDMAN, E. R.,	Washington,	*District of Columbia.*
JOY, G. W., JR.,	Leonardtown,	St. Mary's.
KNATZ, E. G., JR.,	Owings Mills,	Baltimore.
KNODE, K. F.,	Hagerstown,	Washington.
KOHN, M. C.,	New York,	*New York City.*
LAIRD, C. K.,	Philadelphia,	*Pennsylvania.*
LEPPER, M.,	Hyattsville,	Prince George.
LOOMIS, L. T.,	Mt. Rainier,	Prince George.
MCBURNEY, M. W.,	Baltimore,	*Baltimore City.*
MCLEAN, W.,	Owings Mills,	Baltimore.
MILLER, J. H.,	Baltimore,	*Baltimore City.*
MORRIS, P.,	Faulkner,	Charles.
MORRIS, W. G.,	Washington,	*District of Columbia.*
REISINGER, A.,	Rockville,	Montgomery.
RUFF, S. W.,	Roslyn,	Baltimore.
SHARP, G. B.,	Glenelg,	Howard.
SMITH, H.,	Arlington,	Baltimore.
SMITH. K. E.,	Washington,	*District of Columbia.*
STEINMETZ, F. W.,	Roland Park,	Baltimore.
STERLING, J. C.,	Crisfield,	Somerset.
SUNSTONE, J. T.,	Baltimore,	*Baltimore City.*
TAYLOR, E. A.,	Stockton,	Worcester.
TAYMAN, G. S.,	Westwood,	Prince George.
TOWLES, R. C.,	College Park,	Prince George.
VALLIANT, E. S.,	Laurel,	*Delaware.*
WALKER, R. R.,	Boston,	*Massachusetts.*
WHITE, R.,	College Park,	Prince George.
WILSON, L. C.,	Nottingham,	*Pennsylvania.*

SUB-FRESHMAN CLASS.

NAME.	POST OFFICE.	COUNTY.
ARNOLD, T.,	Hyattsville,	Prince George.
BANDES, W.,	Brooklyn,	*New York.*
BACON, C. H.,	Silver Spring,	Washington.
CALDWELL, J. S., JR.,	Baltimore,	*Baltimore City.*
COLBURN, W. T.,	Baltimore,	*Baltimore City.*
COLLINS, E. C.,	Washington,	*District of Columbia.*
DAVENPORT, L.,	Washington,	*District of Columbia.*
DEAL, J. E.,	Cumberland,	Allegany.
DUBEL, R.,	Baltimore,	*Baltimore City.*
DURRETY, L. M.,	Guantanamo,	*Cuba.*
FATT, V. L.,	Washington,	*District of Columbia.*
FOXWELL, S. T.,	Leonardtown,	St. Mary's.
FRANCE, R.,	Knoxville,	*Tennessee.*
FREUNDLICH, H.,	Baltimore,	*Baltimore City.*
GILFIN, W. F.,	Lanham,	Prince George.
GREENE, L. S.,	Washington City,	*District of Columbia.*
HOWARTH, J. A.,	Philadelphia,	*Pennsylvania.*
HOWE, C.,	Washington,	*District of Columbia.*
HUNTEMAN, C. F.,	Washington,	*District of Columbia.*
ILGENFRITZ, C. W.,	Lutherville,	Baltimore.
JOHNSON, J. M.,	Cambridge,	Dorchester.
KEYWORTH, W. G.	Hyattsville,	Prince George.
LANGSDALE, S. A.,	Easton,	Talbot
MANN, J. W.,	Philadelphia,	*Pennsylvania.*
MEDINGER, A. C.,	Balboa,	*Canal Zone.*
MILLER, J. F.,	Chillum,	Prince George.
MILLER, W. L.,	Cumberland,	Allegany.
SENART, B. F.,	Washington,	*District of Columbia.*
STEPHENSON, F. T.,	Hyattsville,	Prince George.
THOMSEN, F. L.,	Berwyn,	Prince George.
THORNE, M. A.,	Lanham,	Prince George.
TOWNSEND, W. D.,	Oakland,	Garrett.
WALLACE, S. C.,	Deal's Island,	Somerset.
WAXTER, W. D.,	Baltimore,	*Baltimore City.*
WILLIAMS, O. V.,	Nanticoke,	Wicomico.

PREPARATORY CLASS.

AMBROSE, CLAYTON,	St. Mary's,	St. Mary's.
BLANCO, R.,	Cochabamba,	*Bolivia.*
BRANDT, J. H.,	Windsor Hills,	Baltimore.
BROOKS, J.,	Hyattsville,	Prince George.
BROWN, W. E.,	Hamilton,	*Bermuda.*
CLARK, J. T.,	Washington,	*District of Columbia.*
COLE, L. T.,	Denton,	Caroline.
CUNHA, CINCINATO,	Sao Paulo,	*Brazil.*
DAVENPORT, L.,	Washington,	*District of Columbia.*
GOWLER, L. M.,	Washington,	*District of Columbia.*
GINDER, L.,	Hyattsville,	Prince George.
GUDE, E. F.,	Washington,	*District of Columbia.*
MAGRUDER, F.,	Hyattsville,	Prince George.
MALLERY J. P.,	Lanham,	Prince George.

NAME.	POST OFFICE.	COUNTY.
MILLS, JAMES E.,	Hyattsville,	Prince George.
MORAES, JOSI,	Sao Paulo,	*Brazil.*
MULLER, P. H.,	Washington,	*District of Columbia.*
POSEY, W. B.,	Cross Roads,	Charles.
PYWELL, E. E.,	College Park,	Prince George.
ROBINETTE, D.,	Washington,	*District of Columbia.*
ROOK, T.,	College Park,	Prince George.
SHEPHERD, D. H.,	Bynum,	Harford.
STABLER, A. L.,	Sandy Spring,	Montgomery.
VINCENTIS, L. De,	Baltimore,	*Baltimore City.*

SECOND YEAR AGRICULTURAL.

BENSON, E. W.,	Cockeysville,	Baltimore.
DAVIS, G. A.,	Rocks,	Harford.
DEARSTYNE, H. S.,	Hawthorne,	*Connecticut.*
IRVING, A. E.,	Baltimore,	*Baltimore City.*
MASON, J. P. H., JR.,	Accotink,	*Virginia.*
MERRITT, G. A.,	Sparrows Point,	Baltimore.
MOORE, G. C.,	Queen Anne,	Talbot.
TOWNSHEND, H. W.,	Mitchellsville,	Prince George.
WHITE, H. W.,	Dickerson,	Montgomery.

SECOND YEAR HORTICULTURAL.

TODD, A. M.,	Fort Howard,	Baltimore.
WILLSON, L. G.,	Silver Spring,	Montgomery.

FIRST YEAR AGRICULTURAL AND HORTICULTURAL.

BALDWIN, H. S.,	Baldwin,	Baldwin.
BASSET, H. W.,	Washington,	*District of Columbia.*
BOND, B.,	Tompkinsville,	Charles.
BRIGHT, C.,	Stevensville,	Queen Anne.
BURLINGHAM, P. A.,	Baltimore,	*Baltimore City.*
COLE K. C.,	Port Chester,	*New York.*
CRANSFORD, J. T.,	Solomons,	Calvert.
DAVIS, G. A.,	Rocks,	Harford.
DAY, S. E.,	Baltimore,	*Baltimore City.*
DRAKE, L. R.,	Royal Oak,	Talbot.
DINGER, J. T.,	Washington,	*District of Columbia.*
DUNNINGTON, F.,	Washington,	*District of Columbia.*
GAREY, W. M.,	Denton,	Caroline.
HOFFMAN, C. F.,	Hagerstown,	Washington.
JAMES, C. G.,	Easton,	Talbot.
JOHNSTON, N.,	Baltimore,	*Baltimore City.*
LONG, T. B.,	Crisfield,	Somerset.
MAUS, C. V.,	Westminster,	Carroll.
METCALFE, G. E.,	Union Bridge,	Carroll.
PARRAN, B.,	St. Leonards,	Calvert.
PURKINS, G. M.,	Amburg,	*North Carolina.*
RADEBAUGH, A. D.,	Bynum,	Harford.
RENGEL, F.,	Oruro,	*Bolivia.*
SHERMAN, A. M.,	Riverdale,	Prince George.
SELBY, C. M.,	Amburg,	*Virginia.*

NAME.	POST OFFICE.	COUNTY.
Shipley, H. B.,	College Park,	Prince George.
Skinner, W. H.,	Mt. Washington,	Baltimore.
Smoot, L. B.,	Kensington,	Montgomery.
Stanton, W. C.,	Grantsville,	Garrett.
Stinson, W. H.,	Glenwood,	Howard.
Xavier, P.,	Sao Paulo,	*Brazil.*

STUDENTS IN THE SHORT WINTER COURSES.

Ager, C. B.,	Hyattsville,	Prince George.
Ager, Raymond E.,	Hyattsville,	Prince George.
Arrowsmith, Miss L. O.,	Beltsville,	Prince George.
Balderston, Levi H.,	Colora,	Cecil.
Balderston, Lloyd,	Colora,	Cecil.
Beall, Miss M. C.,	Beltsville,	Prince George.
Beall, Mrs. S. W.,	Beltsville,	Prince George.
Bird, Mrs. A. C.,	Laurel,	Prince George.
Bisell, Miss E. W.,	Beltsville,	Prince George.
Bohannon, Mrs. C. S.,	Overlea,	Baltimore.
Bladen, Mrs. Geo. W.	College Park,	Prince George.
Bower, R. F.,	Hagerstown,	Washington.
Boyer, W. Day,	Damascus,	Montgomery.
Bryan, Willard V.,	Queenstown,	Queen Anne.
Bye, Samuel G.,	Lewisville,	*Pennsylvania.*
Carroll, Charles,	Ellicott City,	Howard.
Carter, Miss M. D.,	Hyattsville,	Prince George.
Caulk, Wm. W.,	Wyoming,	*Delaware.*
Chaffey, S. R.,	Marion Station,	Somerset.
Chaflin, Warren E.,	College Park,	Prince George.
Clark, Mrs. M. M.,	Hyattsville,	Prince George.
Clark, Mrs. O. J.,	Hyattsville.	Prince George.
Clendaniel, Chas. E.	Kennedyville,	Kent.
Cone, R. L.,	Hyattsville.	Prince George.
Cook, Raymond,	Federalsburg,	Caroline.
Cornelius, Mrs. F.,	Worton,	Kent.
Cox, Mrs. E. J.,	Severna Park,	Anne Arundel.
Dawson, Howard H.,	Glyndon,	Baltimore.
Detrow, S.,	Hagerstown,	Washington.
Devitt, Christ. T.,	Hoboken,	*New Jersey.*
Dixon, J. W.,	Hanover,	*Virginia.*
Earley, H. R.,	Sharpsburg.	Washington.
Ford, B. A.,	College Park,	Prince George.
Galbreath, J. R.,	Street,	Harford.
Galbreath, S. W.,	Rocks,	Harford.
Gaither, W. C.,	Ellicott City,	Howard.
Garey, William W.,	Denton,	Caroline.
Gilkerson, R. W.,	Romney,	*West Virginia.*
Gadey, Geo. A.,	Berwyn,	Prince George.
Goodman, Roy,	Kennedyville,	Kent.
Gregory, E. Van,	St. Mary's,	St. Mary's.
Gude, Alex.,	Hyattsville,	Prince George.
Hall, James M.,	Hyattsville,	Prince George.
Hamm, Mrs. J. B.,	Washington,	*District of Columbia.*
Harris, A. L.,	Betterton,	Kent.

NAME.	POST OFFICE.	COUNTY.
HART, DE WITT C.,	Beltsville,	Prince George.
HART, JOHN A.,	Beltsville,	Prince George.
HART, MISS J. J.,	Beltsville,	Prince George.
HART, MRS. J. T.,	Beltsville,	Prince George.
HARVEY, ALEX., JR.,	Baltimore,	*Baltimore City.*
HEITMULLER, B. C.,	Hyattsville,	Prince George.
HIGHBARGER, DR. J. T.,	Hagerstown,	Washington.
HOFFMAN, CALVIN,	Hagerstown,	Washington.
HUGHES, B. C.,	Rockville,	Montgomery.
HUNGERFORD, E. W.,	Marshall Hall,	Charles.
JACKSON, J.,		
JOHNSON, R.,		
KNOWLES, J. A.,	Riverdale,	Prince George.
KNOWLES, J. B.,	Bowie,	Prince George.
KUNDAHL, G. G.,	St. Mary's,	St. Mary's.
KUNDAHL, O. C.,	Palmer's,	St. Mary's.
LANE, GILBERT,	Preston,	Caroline.
LANHARDT, GEO. H.,	Hyattsville,	Prince George.
LATROBE, FRED C.,	Baltimore,	*Baltimore City.*
LAVAGGO, EUGENE,	West Hoboken,	*New Jersey.*
LAWRENCE, C. H.,	Brentwood,	*District of Columbia.*
LEMON, H. C.,	Hyattsville,	Prince George.
LEWIS, MRS. H. E.,	Riverdale,	Prince George.
LONG, J. M.,	Washington,	*District of Columbia.*
MAHONEY, THOMAS,	Mitchells,	*Virginia.*
MANNAKEE, MRS. M. A.,	Silver Springs,	Montgomery.
McCANNA, FRANCIS J.,	Pittston,	*Pennsylvania.*
McCULLEN, JOHN W.,	Hyattsville,	Prince George.
McKENNEY, WALTER A.,	Walkersville,	Frederick.
MONROE, MRS. JOHN F.,	College Park,	Prince George.
MAUBET, EDGAR W.,	Catonsville,	Baltimore.
MUNNICKHUYSEN, W. B.,	Bel Air,	Harford.
MURRAY, C. D.,	Elkridge,	Howard.
MURRAY, J. D.,	Washington,	*District of Columbia.*
NORRIS, CHAS. A.,	Edgewood,	Baltimore.
O'KEEFE, MRS. M.,	Hyattsville,	Prince George.
O'NEILL, MRS. T. F.,	Riverdale,	Prince George.
PARRAN, B.,	St. Leonards,	Calvert.
PENNINGTON, W. E.,	Washington,	*District of Columbia.*
PFLUGER, F. E.,	Hyattsville,	Prince George.
PHAIR, G. F.,	Spencerville,	Montgomery.
PHAIR, MRS. G. F.,	Spencerville,	Montgomery.
PHELPS, W. A.,	Monkton,	Baltimore.
PHELPS, W. P.,	Bowie,	Prince George.
POWELL, W. P.,	Hyattsville,	Prince George.
PRIFF, WILLIAM,		
PUTNAM, CHAS. N.,	Anacostia,	*District of Columbia.*
PUTNAM, C. ST. C.,	Ellicott City,	Howard.
RAGAN, ROBT. H.,	Gatun,	*Panama.*
RECKFORD, E. F.,	Cockeysville,	Baltimore.
REICK, HARVEY,	Preston,	Caroline.
ROBY, CARL T.,	Silver Springs,	Montgomery.
ROOK, RAYMOND,	College Park,	Prince George.

NAME.	POST OFFICE	COUNTY.
Rook, W. B.,	College Park,	Prince George.
Ruffner, Mrs. R. H.,	College Park,	Prince George.
Senfert, Geo.,	Fullerton,	Baltimore.
Sexton, R. M.,	Harper's Ferry,	*West Virginia.*
Shafer, A. R.,	Little Orleans,	Allegany.
Short, Luther,	Hillsboro,	Caroline.
Shown, Bradford,	Denton,	Caroline.
Skinner, W. H.,	Mt. Washington,	Baltimore.
Smith, R. H., Jr.,	Aberdeen,	Harford.
Smoot, L. R.,	Kensington,	Montgomery.
Stabler, August,	Brighton,	Montgomery.
Stewart, E. M.,	Hyattsville,	Prince George.
Stewart, Earl W.,	Hyattsville,	Prince George.
Stinson, W. H.,	Glenwood,	Howard.
Stevens, Waldo W.,		
Stubbs, R. H.,	Baltimore,	*Baltimore City.*
Sykes, G. H.,	Ellicott City,	Howard.
Tallant, R. K.,	Hancock.	Washington.
Todd, M. L.,	Galesville,	Anne Arundel.
Waller, M. D.,	Laurel,	*Delaware.*
Walpuskii, T.G., Jr.,	New York,	*New York City.*
Webb, Miss A.,	College Park,	Prince George.
Webb, Mrs. H.,	College Park,	Prince George.
White, Miss K.,	College Park,	Prince George.
Whiteford, H. C.,	Whiteford,	Harford.
Williams, Mrs. H.T.,	Worton.	Kent.
Winbigler, Mrs. A.C.,	Braddock Heights,	Frederick.
Wolfinger, D. W.,	Hagerstown,	Washington,
Woodville, Mrs. C.,	Berwyn,	Prince George.
Wright, Mrs. M.,	Riverdale,	Prince George.
Wright, William,	Preston,	Caroline.
Yeakle, Ira B.,	Baltimore,	*Baltimore City.*
Zentz, E. B.,	Thurmont,	Frederick.
Zentz, T. M.,	Thurmont,	Frederick.

SUMMARY OF STUDENTS.

Graduate	13
Senior	20
Junior	18
Sophomore	44
Freshman	48
Sub-Freshman	35
Preparatory	24
Second Year Agricultural	9
Second Year Horticultural	2
First Year Agricultural and Horticultural	31
Short Winter Courses	132
Total	376

LIST OF PRESIDENTS AT THE MARYLAND AGRICULTURAL COLLEGE.

1. Prof. Benjamin Hallowell,	President of the Faculty	..1859—1860
2. Rev. J. W. Scott,	" " "	..1860—1860
3. Prof. Colby,	" " "	..1860—1861
4. Prof. Henry Onderdonk,	" " "	..1861—1864
5. Prof. N. B. Worthington,	" " "	..1864—1867
6. Prof. C. L. C. Minor,	President of the College	..1867—1868
7. Admiral Franklin Buchanan,	" " "	..1868—1869
8. Prof. Samuel Regester,	" " "	..1869—1873
9. General Samuel Jones,	" " "	..1873—1875
10. Captain W. H. Parker,	" " "	..1875—1883
11. General Augustus Smith,	" " "	..1883—1887
12. Allen Dodge, Esq., Pro Tem.,	" " "	..1887—1888
13. Major Henry E. Alvord,	" " "	..1888—1892
14. R. W. Silvester, LL. D.,	" " "	..1892—1912
15. Thos. H. Spence, M. A., Acting	" " "	..1912—....

GRADUATES WITH DEGREES AND ADDRESSES.

The following members of the various graduating classes have been located. Any information leading to further additions, addresses and occupations of Alumni will be gratefully received.

CLASS OF '62.

*Franklin, J., B. S.
Sands, W. B., A. B., Lake Roland, Md.

CLASS OF '63.

*Calvert, C. B., A. B.
Todd, W. B., B. S.

CLASS OF '64.

Hall, D., A. M.

CLASS OF '66.

Hall, E. of B., A. B., Millersville, Md.
*Roberts, L., Ph. B.
Waters, F., A. B., West River, Md.

CLASS OF '71.

Soper, F. A., A. B., (M. A. '74), Supt. of Public Schools, Baltimore, Md.

CLASS OF '73.

*Henry R. S., A. B., (M. A. '75).
Miller, O., A. B., (M. A. '75).
Regester, J. A., A. B.
Worthington, D., A. B.
Worthington, W., A. B.

CLASS OF '74.

Coffren, J. H., B. S., (M. A. '77).
Davis, H. M., A. B., (M. A. '77), Poolesville, Md.
Griffith, L. A., A. B., (M. A. '77), Upper Marlboro, Md.
Norwood, F. C., A. B., (M. A. '77), Frederick, Md.

CLASS OF '75.

Gray, J. B., A. B., (M. A. '78), Prince Frederick, Md.
Hyde, J. F. B., A. B., 1803 Bolton St., Baltimore, Md.
Lerch, C. E., B. S., Lerch Bros., 110 Hanover St., Baltimore, Md.
Miller, L., B. S., El Paso, Texas.

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*Deceased.

CLASS OF '76.

*Blair, W. J., B. S., (M. S. '79).
Thomas, T. H., B. S., Maddox, Md.
*Worthington, J. L., B. S.
Preston, J. S., B. S., 815 N. Charles St., Baltimore, Md.

CLASS OF '77.

*Beall, R. R., B. S.
Emack, E. G., B. S., District Building, Washington, D. C.
*Thomas, G., B. S.
Truxton, S., B. S.

CLASS OF '78.

Thomas, W., B. S., Westminster, Carroll Co., Md.

CLASS OF '80.

Gale, H. E., A. B., 260 W. Hoffman St., Baltmore, Md.

CLASS OF '81.

Houston, T. T., A. B., Baltimore, Md.
Mercer, R. S., A. B.
Porter, W. R., A. B.
Rapley, R. R., B. S., 1931 Sixteenth St., N. W., Washington, D. C.
Thomas, W. H., A. B., Westminster, Md.
Wood, C. W., A. B.

CLASS OF '82.

Bowen, P. A., Jr., A. B., 1413 G St., N. W., Washington, D. C.
Freeland, H., A. B., Mutual, Md.
Saunders, C. A., A. B.
*Stonestreet, J. H., A. B.
Wenner, C., A. B.

CLASS OF '83.

Chew, R. B. B., A. B., 512 F St., N. W., Washington, D. C.
Kirby, W. A., A. B., Trappe, Md.
*Lakin, W. A., A. B.
Rapley, E. F., A. B., 628 Louisiana Ave. Washington, D. C.

CLASS OF '84.

Martin, F., B. S.
Lakin, W. T., A. B., Cumberland, Md.

CLASS OF '88.

Chambliss, S. M., A. B., News Building, Chattanooga, Tenn.
Hazen, M. C., B. S., City Surveyor, Washington, D. C.
Johnson, L. B., A. B., Morganza, Md.
*Sigler, W. A., B. S.
Smith, R. E., B. S., Ridgely, Md.
Tolson, A. C., A. B., Gunther Building, Baltimore, Md.
Weems, J. B., B. S.

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*Deceased.

CLASS OF '89.

Griffith, T. D., B. S., Redland, Md.
Lewis, G., B. S.
Pindell, R. M., B. S., Secretary Wilmington Board of Trade, Wilmington, Del.
*Saulsbury, N. R., B. S.
Witmer, F., B. S., Hagerstown, Md.

CLASS OF '90.

Calvert, R. C. M., B. S., Bangalore, India.
Keech, W. S., B. S., Maryland National Bank Building, Towson, Md.
Manning, C. C., B. S., 16 Avon St., Portland, Me.
*Niles, E. G., B. S.
Russell, R. L., B. S., Anadarko, Okla.
Soles, C. E., B. S., McKeesport, Pa.

CLASS OF '91.

*Branch, C., B. S.
*Langley, J. C., B. S.
Latimer, J. B., B. S., Broomes Island, Md.
*Penn, S., B. S.
Veitch, F. P., B. S., College Park, Md.

CLASS OF '92.

Besley, F. W., A. B., Johns Hopkins University, Baltimore, Md.
Brooks, J. D., A. B., Medical Dept., care War Dept., Washington, D. C.
Calvert, G. H., A. B., 425 D St., N. W., Washington, D. C.
Chew, F., B. S.
Childs, N., B. S., Millersville, Md.
Gambrill, S. W., B. S., Fidelity and Deposit Co., 502 Fidelity Bldg., Baltimore, Md.
Johnson, E. D., A. B., West Pittston, Pa.
Ray, J. E., A. B., Columbian Building, Washington, D. C.

CLASS OF '93.

Alvey, C., B. S., Hagerstown, Md.
Buckley, S. S., B. S., College Park, Md.
Graff, G. Y., B. S., 3323 Fourteenth St., N. E., Washington, D. C.
Holzapfel, H. H., Jr., B. S., Hagerstown, Md.
Lawson, J. W., B. S., Southern Railway, Washington, D. C.
Sherman, H. C., B. S., Columbia University, New York, N. Y.

CLASS OF '94.

Best, H., B. S., Birdsville, Md.
Bomberger, F. B., B. S., (M. A. '02), College Park, Md.
Brown, A. S., B. S., 1432 S St., N. W., Washington, D. C.
Cairnes, C. W., B. S., U. S. Revenue Cutter Service, Treasury Dept., Washington, D. C.

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*Deceased.

Chiswell, B. M., B. S., Florence Court, Washington, D. C.
Dent, H. M., B. S.
Foran, T. E., B. S., Port Deposit, Md.
Key, S., B. S., (M. S. '02), 1733 H St., N. W., Washington, D. C.
*Pue, R. R., B. S.
Sudler, M. T., B. S., (M. S. '02), University of Kansas, Lawrence, Kan.
Weimer, C. H., B. S., Shamokin, Pa.

CLASS OF '95.

Bannon, J. G., B. S.
Claggett, G. H., B. S., Upper Marlboro, Md.
Compton, B., B. S., Woodmont, Conn.
Crapster, W. B., B. S., 402 Sixth St., N. W., Washington, D. C.
Edelen, G. S., B. S., Central High School, Washington, D. C.
Graham, H. R., B. S., Chestertown, Md.
Harding, S. H., B. S., 1737 T. St., N. W., Washington, D. C.
Harrison, R. L., B. S., Geological Survey, Washington, D. C.
*Jones, H. C., B. S.
McCandlish, L., B. S., Reading, Pa.
McDonnell, C. C., B. S., Bureau of Chemistry, Washington, D. C.
Mulliken, C. S., B. S., Brookfield Center, Conn.
Skinner, W. W., B. S., Bureau of Chemistry, Washington, D. C.
Sliger, R. E., B. S., Oakland, Md.
Timanus, J. J., B. S., Towson, Md.
Wilson, G. W., Jr., B. S., Upper Marlboro, Md.

CLASS OF '96.

Anderson, J., Jr., B. S., Shreveport, La.
Beale, R. B., B. S., General Electric Co., Schenectady, N. Y.
Crapster, T. G., B. S., U. S. S. Itasca, Baltimore, Md.
Dirickson, C. W., B. S., Berlin, Md.
*Eversfield, D., A. B.
Heyser, H. H., A. B., Hagerstown, Md.
Laughlin, J. R., B. S., (M. S. '01, M. A. '02), Hagerstown, Md.
Rollins, W. T. S., B. S., Seat Pleasant, Md.
Walker, C. N., B. S., 218 F St., N. W., Washington, D. C.

CLASS OF '97.

Calvert, C. B., A. B., College Park, Md.
Cronmiller, J. D., A. B., Laurel, Md.
Gill, A. S., B. S., 215 St. Paul St., Baltimore, Md.
Gill, N. H., B. S., Glyndon, Md.
Graham, J. G. R., A. B., 212 La Salle St., Chicago, Ill.
Heward, H., B. S., Water and Spruce Sts., Philadelphia, Pa.
Lewis, G., B. S., Straight Creek Coal and Coke Co., Pineville, Ky.
Nelligan, B. S., B. S., District Building, Washington, D. C.
Posey, F., A. B., Frederick, Md.
Queen, C. J., B. S., 165 State St., Brooklyn, N. Y.
Schenck, G. K. W., B. S., 343 Boulevard, Rockaway Beach, N. Y.
Watkins, B., Jr., B. S., Chesterfield, Md.
Welty, H. T., 349 S. Fourth Ave., Mt. Vernon, N. Y.
*Weedon, W. S., B. S., (M. S., '98).
Whiteford, G. H., B. S., Albright College, Myerstown, Pa.

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*Deceased.

CLASS OF '98.

Allnut, C. V., A. B., Neuva Gerosa, Isle of Pines, Cuba.
Barnett, D. C., A. B., (M. A. '07), Cambridge, Md.
Burroughs, C. R., B. S., Tompkinsville, Md.
Cameron, G. W., B. S.
Dennison, R. E., A. B., War Department, Washington, D. C.
Dickerson, E. T., A. B., (M. A. '03), 301 St. Paul St., Baltimore, Md.
Houston, L. J., Jr., A. B., 2310 N. Charles St., Baltimore, Md.
Lillibridge, J. A., A. B., Laurel, Md.
Mitchell, J. H., M. E., 619 Main St., Richmond, Va.
Nesbitt, W. C., B. S., Southern Trust Co., Wilmington, Del.
Peterson, G., A. B., St. Leonards, Md.
Ridgely, C. H., B. S., Sykesville, Md.
Robb, P. L., B. S., Baltimore City College, Baltimore, Md.
Whitely, R. P., A. B., Hyattsville, Md.

CLASS OF '99.

*Blandford, J. C., M. E.
Collins, H. E., A. B., Crisfield, Md.
Eyster, J. A. E., B. S., University of Wisconsin, Madison, Wis.
Galt, M. H., A. B., 424 Askew Ave., Kansas City, Mo.
Gough, T. R., B. S., Barnesville, Md.
Hammond, W. A., A. B., 218 Law Building, Baltimore, Md.
Kenley, J. F., Jr., M. E., Baltimore Bridge Co., Baltimore, Md.
McCandlish, R. J., B. S., Hancock, Md.
Price, T. M., B. S., Bureau of Animal Industry, Washington, D. C.
Robb, J. B., B. S., Department of Agriculture, Richmond, Va.
*Sedwick, J. O., B. S.
Shamberger, D. F., M. E., Sparrows Point, Md.
*Shipley, J. H., B. S.
Straughn, M. N., B. S., 121 B St., N. W., Washington, D. C.
Whitehill, I. E., A. B., New Windsor, Md.

CLASS OF '00.

Choate, E. S., M. E., Roslyn, Md.
Church, C. G., B. S., 403 Sixth St., N. W., Washington, D. C.
Ewens, A. E., B. S., Atlantic City, N. J.
*Grason, A. S. R., B. S.
Groff, W. D., B. S., Owings Mills, Md.
Jenifer, R. M., B. S., Maryland Geological Survey, Baltimore, Md.
Kefauver, H. J., A. B., (M. A. '01), Frederick, Md.
Peach, S. M., A. B., Upper Marlboro, Md.
Sappington, E. N., B. S.
Sudler, A. C., B. S., Real Estate Trust Building, Philadelphia, Pa.
Talbott, W. H., A. B., Chesapeake Beach, Md.
Weigand, W. H., B. S.

CLASS OF '01.

*Cobey, W. W., B. S.
Hardesty, J. T., A. B., New York City.
McDonnell, F. V., M. E., care of P. R. R., Logansport, Ind.
Whiteford, H. C., B. S., Whiteford, Md.

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*Deceased.

CLASS OF '02.

Bowman, J. D., M. E., Rockville, Md.
Couden, J., B. S., 228 W. Bay St., Jacksonville, Fla.
Darby, S. P., B. S., Barnesville, Md.
*Fendall, W. S., M. E.
Hirst, A. R., B. S., Wisconsin Geological Survey, Madison, Wis.
*Landsdale, H. N., B. S.
Mitchell, R. L., B. S., La Plata, Md.
Mackall, L. E., A. B., Calvert Building, Baltimore, Md.
Symons, T. B., B. S., (M. S. '04), College Park, Md.
*Wisner, J. I., B. S.

CLASS OF '03.

Cairnes, G. W., M. E., care of A. C. G. Manning, Astoria, Ore.
Calderon, M. A., M. E., (B. S. '04), Lima, Peru.
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